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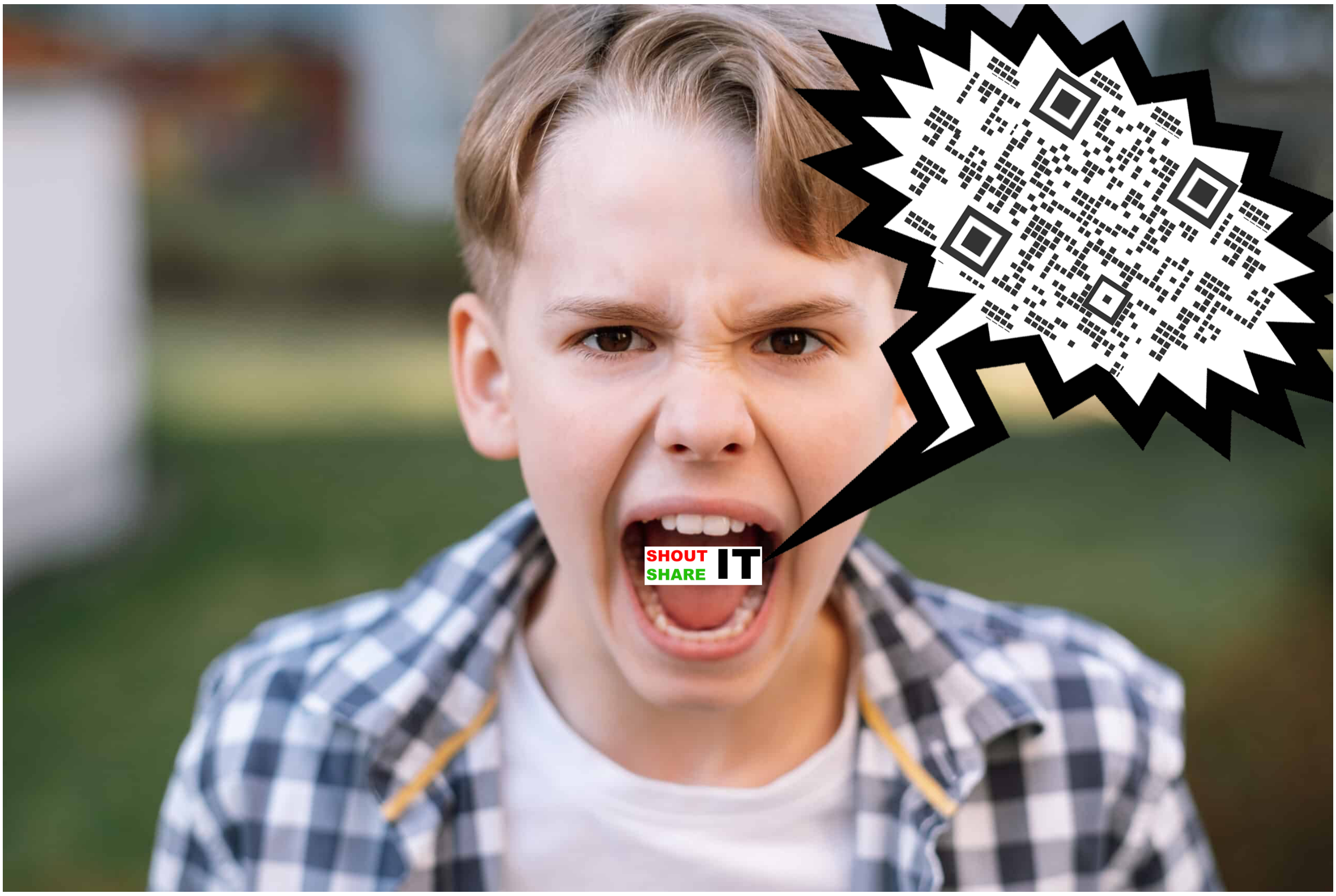

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THE

AMERICAN

BEE JOURNAL.

AGRICULTURAL COLLEGE.

EDITED BY SAMUEL WAGNER.

"I here present thee with a hive of bees, laden some with wax, and some with honey. Fear not to approach! There are no wasps, there are no hornets here. If some wanton bee should chance to buzz about thine ears, stand thy ground and hold thy hands; there's none will sting thee if thou strike not first. If any do, she hath honey in her bag will cure thee too."—QUARLES.

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AT TWO DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

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[From the German of F. W. Vogel.]

Practical Bee-Culture.

AFTERSWARMS.

Second or afterswarms may be expected when *teeting*, commonly called *piping*, and *quawking* are heard in a hive from which a prime swarm has issued. The latter of these sounds proceeds from mature young queens kept confined within their cells either by constraint of the workers or from fear of the queen already at large in the hive. The teeting proceeds from this young queen already emerged after the departure of the first or prime swarm, and is uttered in reply to the querulous cry of one still kept in durance by force or fear. Not unfrequently such calls and responses continue to be heard in a hive during several successive days, even when the weather seems to be highly propitious for emigration, and still no swarm departs.

While an afterswarm is issuing, the young queen occasionally makes her appearance among the earliest emigrants, though she usually does not come forth till a considerable portion of the swarming party is already on the wing. She rarely delays her departure, however, till half the bees are out, nor till towards the close of the exodus. In most cases she shows herself repeatedly on the alighting board, but again retreats into the hive, finally re-appearing and taking wing, to accompany the swarm. Yet, it sometimes also happens that, whether from sheer wilfulness, or from some other cause, she ultimately remains in the hive, after having thus shown herself, and the swarm fails to issue. The bees then already out are apt to settle in small clusters in two or three different places—speedily, however, becoming aware of their queenless condition, and gradually returning to the parent hive.

Though an afterswarm issues to-day, if the swarming impulse continues to prevail, the parent stock will not send forth another to-morrow, though it may probably do so on the third day, for the young queen will usually remain at least one day at large in the hive after leaving the royal cell. Second, third, and subsequent swarms, not unusually contain two, three, and at times a still larger number of young queens, each—a circumstance easy to be accounted for. When a second or subsequent swarm is sent out, the young queens still in their cells are usually quite mature and full fledged; and several of them avail themselves of the opportunity to emerge during the bustle, and accompany the departing swarm. An afterswarm that has several queens will generally cluster in the usual manner in one place; but occasionally it will subdivide and settle in two or more liliputian clusters. In a short time, however, the bees of the smaller of these clusters will leave and join the larger one, which contains the first-hatched queen, that had emerged and mingled with the workers for some time before the departure of the swarm, and accompanied the first-issuing party.

When the swarming impulse has subsided, the bees allow the emerged queen remaining with them to destroy all the queen cells yet existing in the hive, or will extirpate the royal brood themselves, by dragging the nymphs from their cells, and casting them out. Usually this work of destruction is begun on the day when the second swarm has issued; but if a dead queen be found in front of a hive in which teeting *and quawking* is still heard, it may not be regarded as certain evidence that the colony has abandoned all inclination to swarm; for the queen thus found may be one that issued unobserved from her cell and was afterwards encountered and killed by her accepted rival. Usually, however, the workers destroy the supernumerary queens reared in a hive in preparation for swarming.

All bee-keepers residing in poor honey districts concur in the opinion that after-swarms, especially in unfavorable seasons, are ruinous to bee-culture; and that even in ordinary seasons, they deprive us of all chance of obtaining any surplus honey. The parent stocks commonly devote some eight or ten days to this matter of sending out after-swarms, during which period many precious hours are wasted, and honey gathering largely neglected, inasmuch as the swarming impulse does, for the time, to a large degree control or suppress the passion for gathering honey and accumulating stores. Instead of roaming the fields and exploring the blossoms in quest of coveted sweets, many of the workers loiter at home idle, well gorged with honey, awaiting in vain the forthcoming of a swarm. Besides, by repeatedly sending forth after-swarms, the parent stock becomes so greatly depopulated, as to be unable to appropriate properly the supplies yielded by the surrounding districts, abundant though these may be for a brief period. Not unfrequently, too, this reiterated swarming results in leaving the old colony queenless—an event always disadvantageous and sometimes disastrous. Afterswarms, moreover, are commonly so weak that if set up as independent colonies, they fail to fill their hives with combs, and are unable to lay up stores sufficient for their wants in the ensuing winter.

Efforts have been made to overcome the disadvantages arising from repeated afterswarming, by uniting several small swarms so as to form one pretty strong stock. But this can scarcely be regarded as a rational process; for what avails it to deal thus with afterswarms, if their production ruins the parent colony, or so greatly reduces it that it can yield no surplus? Prevention is here also better than cure; and for this reason we transpose parent stocks with the first swarms, after these have issued, in order to prevent after-swarming as much as possible.

We should resolve to content ourselves with prime swarms, and endeavor to suppress subsequent swarming. If a swarm has issued from a movable comb-hive, the queen cells remaining should all be destroyed or removed, save one, on the sixth or seventh day. To destroy them earlier, as for instance on the second or third day, would simply be labor lost, for the workers still finding suitable brood at hand, would immediately start others; but if the removal be effected at the right time no afterswarming can take place. If the owner has not courage or leisure to open his hive and overhaul the combs in quest of queen cells, let him destroy as many on the second or third day as can be seen at a cursory glance, and immediately insert one containing an embryo queen so nearly mature that she will probably emerge in a day or two. When the queen thus introduced is hatched, all other queen cells in the hive will be promptly destroyed, and no swarm can issue.

In common cottage hives it is not an easy matter to destroy the supernumerary queen cells. Adding surplus honey boxes on the top or at the sides, or inserting an eke below, will not always prevent swarming; and when the impulse once gets possession of the bees, even decapitating drone brood or cutting it out, will not then always nullify their inclination to secede, as experience has often shown. There is, nevertheless, a process available, by which the production of these ruinous afterswarms can certainly be prevented, even in cottage hives. A temporary reduction of the population is an effectual counter-check, and enables the beekeeper to accomplish his purpose. So soon as teeting and quawking is heard in a hive, remove it from its stand, turn it up and set an empty hive on it—winding a piece of muslin around the line of junction, so as to prevent bees from getting out. Then rap gently on the lower hive for about twelve minutes. The young queen being very agile, will speedily run up into the upper hive, and be followed by a large part of the workers. Now replace the old stock precisely in its former position, and you have it reduced to a non-swarming condition. But if the young queen were now removed from the swarm, and the bees allowed to return immediately to the parent stock, the work would prove to be labor in vain; for we should soon hear renewed teeting and quawking, and the driving out would have to be repeated. A different disposition must therefore be made of the driven swarm. It must be placed either close at the side, immediately in the rear, or directly on the top of the parent hive, and remain there till the following morning. By that time all the supernumerary queens and royal nymphs will have been destroyed and thrown out, the removal of so large a portion of the population having effectually quenched the disposition to swarm. The bees of the driven swarm will gradually desert their hive and return to their old quarters, leaving only a small number with the forsaken queen, which will also return home when she is finally taken from them. This process is even less troublesome than the search for and removal of the queen in a populous movable comb hive.

But with all his care, a beginner may happen to get some of these undesired afterswarms. This, for instance, may be the case if unfavorable weather sets in after the parent stock and the first swarm have been transposed, in which case only comparatively few bees can leave the parent stock and join the swarm; or it may occur also, when it happens that the parent hive contains a large proportion of young bees, just hatched, and which have not yet flown out. Hence, it may be interesting to inquire, what shall the beginner do with afterswarms obtained thus contrary to his own desire?

In the first place, if such after-swarm has perchance united with a first swarm issuing at the same time from another hive, he should not undertake to separate them The queen of the afterswarm will at once be killed, and the two swarms will unite in peace.

Secondly, if he has several populous and well-stored movable comb hives, and designs to stock several more of the same description, let him place the swarm in a nucleus hive of the same size of frames, give it two or three frames with capped brood, and one frame with sealed honey. Now set the nucleus where he designs the colony to remain permanently, and proceed to build up a stock by inserting brood combs from his populous colonies, and transferring to a larger hive as soon as this becomes necessary.

Thirdly, afterswarms may also be united with each other, and thus made to constitute one strong colony. To this end, dig a hole in the ground, eight or ten inches in diameter, and twelve inches deep. At dusk set over this hole the hive containing the bees you intend to unite; then lift it about six inches high and set it down again with a sudden jar, that the bees may drop into the hole, taking care that the edge of the hive touch the ground equally all around, so that no bees may escape. At the same instant rap smartly on the top of the hive with the palm of your hand, to dislodge and throw down any bees that may be adhering inside. Now lift the hive quickly, set it aside, and substitute for it the one containing the swarm to which the bees stricken down are to be united. Set this gently over the hole. The entrance must be closed, of course, and the bees must be prevented from crawling out from under it, either by surrounding its edges with a strip of muslin, or by heaping up ground around it below. The bees will then unite peacefully, and when all have become quiet, the hive may be placed on its stand;—though I prefer opening the entrance an hour or two after the union, and letting the hive remain over the hole till the next morning, so that any casual stragglers may have an opportunity to join the main body during the night. It need not be feared that both queens will be killed or mutilated in this operation. The queen of the lower party will, on ascending, be seized as a stranger by the bees of the upper hive, and immediately destroyed.

A beginner might suppose it preferable to invert the hive containing the swarm to be united, and set thereon the one that is to receive them. But this process would generally result in a murderous conflict between the workers of the two swarms; if, indeed, the swarm in the lower hive do not refuse to ascend, because its queen, scenting a rival in the upper hive, obstinately adheres to the quarters in which she feels herself safe.

Again, an afterswarm may sometimes be used with great advantage to reinforce a colony which has become greatly depopulated by repeated or excessive swarming. If a colony in a movable comb hive is to be thus strengthened, the bees of the afterswarm should previously be stupefied with tobacco smoke or the fumes of nitrated rags, and the queens then removed. Next, sprinkle the bees with diluted honey, pour them into the vacant part of the hive, and replace the honey-board. They will soon revive, and be kindly accepted by the colony to which they are thus summarily introduced. It is best to employ this process in the evening, when the bees have ceased to work.

Finally, an afterswarm may be returned to its parent stock, and this is probably the best disposition that can be made of it. But this should not be done immediately, or another swarm would commonly issue on the third day. Hive the swarm, and place it either at the side, in the rear, or on the top of its parent hive; wait till the supernumerary queens and queen cells have been destroyed, and the disposition to swarm has subsided. Then search for and remove the queen, and let the bees rejoin the parent stock.

Neither queens or drones ever consume raw pollen. Whatever they receive of that substance, is derived from the chyme or jelly with which they are fed by the workers; and it is thus that they are furnished with a nitrogenous pabulum.

[For the American Bee Journal.]

Novice Once More.

Mr. Editor, and Readers of the Bee Journal, we trust that you have not come to the conclusion that Novice's enthusiasm had all abated, and that he had decided to remain a novice, with no aspiration for a higher title. Far from it, be assured!

To commence where we left off. Our bees wintered finely until the first of March, only having lost one stock, and that was on account of a piece of carelessness, which we would not have believed we could be guilty of, viz: leaving an empty frame in the middle of the hive. The bees consumed all the honey on one side, and were unable to get over. The frame was so placed, to induce them to fill it late in the season, and was forgotten.

The first week in March we had a sudden cold spell, the thermometer being ten or twelve degrees below zero. Thereupon we found three of last year's swarms dead, with plenty of honey and good upward ventilation, but not very plenty of bees, as many had been lost by clustering apart during the winter, as Mr. Langstroth said was sometimes the case, in an article sometime ago.

In the December number, we mentioned a light stock that was put in the cellar, because they made such a loud humming when the mercury went down below zero; and that they were quiet after that. Well, our cellar is so arranged as to keep an even temperature of about 40 degrees, and as we only gave them one frame of sealed honey early in December, (at which time they were almost entirely destitute), we had been in the habit of striking the hive nearly every day, expecting them to be out of honey long before spring. But to our surprise, they answered promptly every time until the middle of March, when we set them out, and were agreeably surprised to find not more than twenty dead bees on the bottom-board, though some others left out had lost two or three quarts; and still further, on taking out the frame of honey given them, we found what we would before have supposed to be an impossibility, viz: nearly all of it remaining. They must have lived *more than three months on less than three pounds of honey.* Is it not so that bees remain partially dormant, at about 40 degrees? By placing the ear against the hive in the cellar, scarcely a sound could be heard, unless the hive was jarred in some way.

We should like to add that they did correspondingly well since then; but they have not. In a few days after setting them out, we found them very few in numbers, and they are now the weakest swarm we have. They were quite light in the fall.

About the rye and oats this spring. Mr. Editor, it would have done you good to have seen them, in case you have never seen a similar sight. We had provided about a bushel and a-half, supposing that to be a plenty. But, as if remembering their last year's education, they opened up on it with astonishing vigor, and consumed nearly all of it on the first two or three pleasant days. After the rye and oat meal was all gone, we gave them wheat flour, until our "better half" feared that the bees would "eat us out of house and home." They became seemingly almost demented, and would dive into the flour and burrow into it, until it seemed as though they themselves must lose their identity. They would fly towards us, and take it out of our hand, as we were carrying it out to them; and such an incessant jubilant humming as they kept up while about it, made one think that they could not be other than the happiest little scamps on the face of the earth. And the huge "little biscuits" (as our children term them) which they had deftly padded up on either leg, presented an appearance ludicrous in the extreme, as they scampered hurriedly into their hives. After the rain had wet down their precious meal and it had become baked over the top, they would not give it up, but tunnelled and burrowed under it, until you imagined they were not bees, but some liliputian wild animals burrowing in the ground. The Chicago tunnelling wasn't a comparison!

"But did all this meal really amount to any positive good?" some of the neighbors asked. Of course it did. Our bees have never before been in half so fine a condition. They have been fully prepared to take advantage, if the apple tree blossoms had drawn them out before the first of May; and Mr. Editor,—will you believe it?—we actually had a fine swarm from our best stock, last Tuesday. Just think of it, on the 19th of May, and the usual time for black bees to swarm about here has been, of late years, about the fourth of July. A swarm of bees in May here is something before unheard of. By the way, Mr. Editor, we must tell you about that swarm.

We had begun to think that that stock might swarm, they were getting so full, when our "better half" came to the store hurriedly to say that "the bees were swarming." Now, as we had clipped all the queens' wings last season, to prevent them from "going off," *a la* Giantess, we knew they could not well swarm without us; and under the excitement of the minute we caught our hat, and regardless of slippers and shirt sleeves, "tore" down street, for the scene of action. Notwithstanding the aforesaid slippers would persist in "coming off" whenever we allowed our "feelings" for a moment to get the better of us, we at last reached home in safety. Sure enough, the bees were in the air, and clustering all over the hive, on the ground, and round about, showing evident signs of something wrong somewhere. We searched all around unsuccessfully for the queen, and concluded she had crawled back into the hive. But, as *we* had got the swarming fever too, we decided we must have a swarm anyway, and accordingly commenced opening the hive to hunt out the queen for the purpose, and found her strangely in the upper part of the hive. As one of the holes in the honey-board was open, she had probably mistaken it for the place of exit. After putting her in a queen cage and suspending her among a few carpet rags nailed to a board hurriedly for the bees to cluster on, we commenced making them swarm over again, by shaking them from the frames near her, nearly all of them having by that time re-entered the hive. But it was "no go." They had concluded not to swarm, and would take no notice of the queen, but hastened back into the hive. A lady friend who was witnessing the operation, suggested that we should put the queen in the place of the hive, so that they could not help finding her. We decided to adopt the plan, and proceeded to plant the queen and carpet rags in the proper position. But as we had only succeeded in scattering over the ground for a rod or two a multitude of young bees who did not know which way to travel, we were probably a little excited ourselves, and in trying to push the strip of board firmly into the ground, it broke suddenly in two. In answer to a remark to our friend whether she was not afraid we would kill ourselves before we got through, she replied that she had more fear that we would kill all our bees, if we attempted to stand on our head among them in that fashion. So we took it more coolly and put the balance of the board in its proper place and had the supreme satisfaction of seeing that the queen was recognized, and then such a scampering as there was apparently by common consent in one direction. As the board was broken off, a dangling end of the carpet rag hung down just to the ground, which they seemed to decide upon as the readiest means of ascending to her majesty. Soon we had a living stream, as large as a man's arm, moving upward, and as the wind waved it to and fro, it was picturesque and amusing in the extreme. There we let them hang just like any swarm, until we got a hive ready, with a frame of brood, and they were hived and have remained just like any natural swarm. The bees remaining on the combs were sufficient for the parent stock, and both are doing finely.

Now, would not the above plan answer at any time, by causing the bees to cluster about their queen set in the place of their old hive, and then moving them to a new location and hiving them? Or would too many of them go back to the old hive?

Mr. Editor, we have got a machine for removing honey from the comb, too. Others, according to the description we saw, were all made of wood. We thought tin would be nicer, and so had a tin can made, about two feet high, and eighteen inches across; made the frame for holding the wire-cloth of galvanized wire such as is used for the white wire clothes lines. As we use both the American and the Langstroth hives, we made it to accommodate both. It works to a charm. We have had some labels printed for our self-sealing fruit jars, of which we send you a sample. You can give it to your readers, if you think it worth while. The blank is left so that we can fill it up with the kind of blossoms from which the honey was gathered. For instance, we have honey from cherry blossoms, apple blossoms, raspberry, locust, white clover, &c., &c. The idea seems to please here. We find no trouble in getting $1 each for quart jars holding three pounds, jar and all, and the different kinds of honey, as we have labeled them, are readily distinguishable. Why not remove the honey as fast as gathered, before it is sealed? We find the most tedious part of the operation is shaving off the caps of the cells. The honey is so nice to use, or to keep, that we feel as if we hardly wanted to use any more boxes.

Though this article is getting long, we will not postpone what we have to say about our long-neglected, but not forgotten, *Giantess.*

Well, we did get the bees down and into a hive, all nicely, notwithstanding doubtful and desponding surmises from a host of friends to the contrary. We intended to cut the bee tree in April, as a kind correspondent advised us to do, as the tree was quite too large to let the top down. But our business was such that we really could not get time to think of or look after them until the 25th of May. Then we got our transferring tools all ready, and started about five o'clock in the morning for the scene of operations. By the way, we begin to think ourselves quite an expert in transferring, notwithstanding our first ludicrous attempt. We have this spring transferred three heavy stocks from box hives, and have done them all in tip-top shape, and the bees are doing fully as well, if not better than before. We did one in forty minutes from the time of coming on the ground; all on the plan we gave last year—moving the old hive back, putting the new one in its place, cutting the comb out, and transferring just the same as you would from one frame hive to another, having plenty of thin pieces of pine with small tacks in each end, all ready to press down whenever wanted.

But we were on the way to the bee-tree, with bee-hive, strips, transferring-board, tin pan, &c., &c. It was a beautiful morning, a beautiful location, and after a beautiful ride, we planted our tools, while two beautiful choppers plied their axes to one of the most beautiful oak trees our wife's father possessed. Giantess was certainly very obliging, we may remark, to go two miles with her retinue and take up her abode on the property of our relative aforesaid. We directed the tree to be fallen, as per advice from the Bee Journal, so as to strike a couple of small hickories to ease its fall; and we succeeded so well that we could take out almost every comb entire. After putting the brood nicely into the hive, we ran the bees in from a place near the opening where they had clustered, as convenient as we could have wished. But, Mr. Editor, there was one *leetle* trouble after all—*Giantess was not there!* In her stead we found a host of gigantic queen cells, and—what was stranger still—at least half a dozen open, with the lids attached as nice as could be! Of course the bees had swarmed, though the bee-hunter who found them for us, maintained that they could not possibly have swarmed, and still have such a host of bees as we had there. But he did not know Italians. They soon went to work, and actually drove the robbers away from the old tree and licked up the remnants and removed them to the new hive. So well had they (and *we*) fastened the combs in the frames, that we carried the hive home in the evening without a single accident; and next morning, on looking them over, we found, not *Giantess*, but four of her promising daughters, all in one hive, and on peaceable terms, as far as we could discover. Now, how is this to be explained? They had been together at least twenty-four hours, as we had put no queen cells whatever in the hive. We divided the swarm into four parts to preserve the queens, for whether hybrids or not, we should be glad to find another queen that could lay eggs and raise a colony at the rate that our lamented Giantess did. And, Mr. Editor, we hint it confidentially that we are going to hunt her up again if it is a possible thing; and if we find her, we shall not wait till the 25th of May next year before we go to work, though black bees do not swarm for a month later.

We would like all the readers of the Bee Journal *en masse*, to take a look at a two-story Langstroth hive of hybrids that we have filling frames for our honey-emptying machine; and if the teeming thousands there at work did not remind them that the novice of old was almost a novice now no longer, we should rest content to sign ourselves, for all time to come, simply Novice.

[For the American Bee Journal.]

Bee Management.

In an article headed "*Criticism*" in the April number of the Bee Journal, by Mr. Quinby, he calls for information, &c.; and as I never did make any charge for any information that I could give, I do not propose to do so now in this case.

A number of years ago, I became acquainted with an old gentleman from Holland, whose name was Wellhuysen; and I obtained the best insight or instructions in bee-keeping from him that I did from any other source whatever, until I began using the movable comb hives. So I propose to give his method of managing bees, the kind of hives used, &c. The hive was made of willows wove basket fashion, plaistered inside and outside with a thick coat of cow manure, and covered on the outside with straw tied on with elm bark. The hive was small at the top, and increased in size down from eight inches to twelve inches in diameter. The portion twelve inches in diameter was about fourteen inches high. The entrance was a small hole on one side, about eight inches from the bottom. I used the hive some seven or eight years, to experiment with. The hive was kept plaistered up tight at the bottom. Now, put a very small swarm in such a hive, it being small at the top and warm, all the comb built would be worker comb, and all occupied by brood as fast as built; and as warmth is necessary for bees to work their wax, there was none lost or wasted. Then, as the swarm needed strengthening, he would drum out young bees from any hive that could spare them, thus strengthening up by degrees. In filing hives with comb, he used young queens; and having only bees enough to build comb as fast as the queen could occupy the cells with brood, every hive was filled with worker comb from top to bottom—except a few with old queens, which were filled partly with worker and partly with drone comb. (He raised drones in the proportion of about five to the hundred.)

Strong stocks are the sheet anchor in bee-keeping; and all worker comb in the breeding apartment of the hive is the very foundation of that sheet anchor. Without it, it is impossible to keep strong stocks. Last July I was called to St. Charles, to assist a man and give him instructions in managing his bees. He had some twenty-five swarms, in chamber hives, with an inch-and-a-half hole on each side at the top of the lower apartment, covered with wire screening, and the hives raised on blocks at the bottom. Under each young swarm that was building combs, there was a large amount of wax wasted. Under some hives it would amount to a double handful. There was evidently wrong ventilation. Again, take a full frame from one of my swarms and insert an empty one in the centre for them to fill, and they will fill it without one particle of waste. But insert that frame at the side of the hive, and there will be some waste of wax. Again, when a swarm is filling boxes placed over them, there is no wax wasted. I saw a Kidder hive last summer, in which the bees were wasting wax while filling boxes. Each box had an inch hole communicating with a corresponding one in the outside cap. Here was too much ventilation. We must understand that most of the comb is built in the night, when the temperature is considerably cooler than it is in the day. Consequently the same ventilation that suits for the day will not answer for the night, if the wax is all to be saved. Every person knows that wax when cold is hard and brittle, and when warm enough is soft and pliant.

Mr. Wellhuysen's objections to lumber hives, as he called them, were that they are too cold for the development of brood, the saving of wax, and for wintering purposes; and I know that for increasing stocks his own hives would beat any hive I ever saw. I furthermore know that I manage to have my hives filled with combs without any waste of wax. The Miner hive was the worst hive I ever saw, for wasting wax. It had crossbars on top, sharpened to an edge on the underside, to prevent the bees from attaching the combs to anything else. There was a piece of cheap thin cotton-cloth spread over said bars, and the cap then put on. This, as he claimed, was to compel the bees to build all worker and straight comb. Thus it will be perceived that this piece of thin cloth allowed the heat to escape so much, that I really believe that they wasted as much wax as they used in filling the hive with combs. Now, if I had said to Mr. Gardner, in my letter to him published in the April number of the Bee Journal, "you must ventilate all your hives the same as I ventilate my largest, or the same as I ventilate my smallest," (for I happened then to have a small one, though it was through my own carelessness or neglect,) and had given him no other directions, he might in either case have ruined his bees. In both winter and summer ventilation, a person must exercise a little discretion and judgment.

About that two-story bee-house, when I alter my opinion I will let you know by the first mail, postage free.

Now, Mr. Wellhuysen could, in his rudely constructed hives, keep all his swarms equally prosperous. I visited his apiary repeatedly, and when he had more than a hundred swarms, I turned up hive after hive and examined them, because he called my attention particularly to the fact that they were all equal in numbers and prosperity. The question with me was, why cannot I manage bees *in frame hives better than he can*, for in these everything is under our control? If a swarm has too much pollen, we can exchange with one that has not enough; if one has too much honey, and another has not enough, by a proper exchange both may be benefitted, &c. But the first foundation of this prosperity is, all worker comb in the breeding apartment; then keep no queen over two years old. Equalization must also be attended to in the summer; in the fall it will be too late. We must attend to this equalization *this* summer, and then we shall in the next, with artificial swarming, have everything under our control. We must never allow the bees to get in advance of the queen; for if we do, the prosperity of the swarm is checked at once; that is, if the bees are allowed to fill the combs with honey in the spring, before the queen has filled it with brood, the swarm will be an unprofitable one. Take a swarm that is nearly destitute of honey and feed it just right, that is so as to promote breeding early in the spring, and not to fill the comb with honey, such swarm will almost invariably be a prosperous one. On the other hand, allow a swarm that has honey enough for all purposes, to appropriate all the honey from one or two other hives early in the spring, and before they consume it, the willows produce honey, then the fruit trees, the white clover, &c. Such a swarm will dwindle down to nothing, because the queen has no place to deposit eggs for brood.

If from any cause the queen does not commence laying eggs as soon as she should in the spring, she must be stimulated, either by feeding or uncapping sealed honey in the hive, for whenever the bees are fed they feed the queen. Thus the rousing up of the bees and compelling them to fill themselves with honey, promotes breeding.—Taking bees from another hive and putting them in with a strange queen, causes them to feed her and pay more attention to her, especially if they are young bees. Bees taken from three or four different swarms, in sufficient numbers to make a good stock, and put in a hive with a queen, will work nearly as well again as the same number taken exclusively from one swarm, with their own queen. Drumming out a swarm and putting it back again in the same hive, sets the bees to feeding the queen. A person who has never tried the experiment of stimulating, and regularly giving the queen all the room she can occupy with brood throughout the season, will be astonished at the amount of bees that can be raised in one season from one queen.

The article from Mr. Dathe, in the April number of the Bee Journal, is worth a careful reading by every reader of the Journal. He arrives at the result of all worker comb in the breeding apartment in one way. Messrs. Bidwell Bros., of St. Paul, Minnesota, arrived at the same result by reducing four hundred colonies to two hundred,—using all the worker comb and all the bees in two hives for one. They thus brought them in the right shape at once. My plan is to use young bees for filling hives; and I commence with a small quantity of bees, for a young queen does not come up to its full capacity at once. As brood increases, I increase the number of bees, yet not so as to have them store honey in the breeding cells. I always insert an empty frame for them to fill, between two that are filled with brood in the centre of the cluster. By so doing, when the hive is full of comb, every comb is soon occupied with brood; and all the eggs, instead of being laid on the outside of the cluster, are, where they should be, in the centre.

My old swarms, when once made up, are always kept strong. If I remove a comb, I always insert an empty frame between two filled with brood; and if there is a small quantity of drone comb in the hive, they almost invariably fill the empty frame with worker comb (for a natural swarm usually builds drone comb at the outside, and not in the centre.)

A swarm made up in the way I make them will be a profitable swarm. They never fail to be so with me. Suppose we make a swarm the way Mr. Quinby directs in his book. While the bees are raising a queen, they build drone comb, which he gets rid of by having it built in boxes. Well by the time the queen is ready to commence breeding, nearly all the old brood has hatched and the cells are filled with honey; and the old bees that were put in with the combs, are for the most part dead. Now the young bees commence filling the frames with worker comb; but those frames are at one side of the hive, and as there is some brood yet to hatch, it is there that the queen will be depositing eggs as fast as she has room; and there too the main cluster of bees will be. If they gather honey as fast as they usually do here, they will give the queen very little room. But suppose they fill the hive with comb and honey, there will not be over one third as many bees in such a swarm in the fall as there ought to be; and I could not warrant it to be a profitable hive the next season.

To sum up the whole—there must be all worker comb in the breeding apartment of a hive; and all swarms should be reinforced and made strong in the breeding season (not in the fall). Any person that follows the practice ot having weak stocks to double up or strengthen in the fall with old bees, will be disappointed and dissatisfied—in other words, will find himself behind the times. So far as wintering bees is concerned, every swarm that is properly managed through the summer, can be wintered and come out in as good condition in the spring as it went in in the fall; and I can make thirty, forty, and even fifty dollars from the poorest stocks that I have had the management of during the previous season. The swarm of which I gave a description in the May number of the Bee Journal, was the poorest one I had under my care the previous summer. I am taking swarms from my neighbors, making them into profitable stocks, and returning them for a reasonable compensation; and I warrant them, if managed as I direct. Some of these swarms had done nothing for three years previous to my taking them in charge. They gave neither swarms nor surplus honey. But this article is too long already, and I have not said one-half of what I could wish to say on the subject.

E. Gallup.

Osage, Iowa.

[For the American Bee Journal.]

Transferring Bees.

It is frequently the case that bee-keepers wish to transfer a whole colony from one hive to another. If the comb has become old from long use, it may be best to change the colony to a new hive. If it is designed to introduce an improved hive, to supersede the old hive previously used, it is desirable to transfer the colonies in such manner as shall give them all the vigor of a new swarm, and secure a colony consisting of the greatest number of workers and the smallest number of drones. Probably about the time of the swarming season is the best time to transfer them.

The transfer has been made by driving the bees from one hive to another placed on the top of it; rapping upon the lower full hive, thus inducing the bees to retreat to the upper empty one. Another plan, adopted by some, is to place the full hive in an empty tub, with the empty hive on the top of it. Pour water in the tub gradually, to rise in the hive with bees, and thus drive them into the upper hive. Still another way is to cut out the comb, fasten it in movable comb frames, and place the frames in the empty hive.

The first is perhaps the oldest method, and may be considered as a rather tedious one. The second method destroys the honey in the comb, and is injurious, if not fatal to the unhatched brood. The third method changes the home of the bees, but retains the old comb. If the old comb is cut out of the hive and placed in movable comb frames, to transfer them to a new hive, this mode not only retains the old comb, but that comb is also in a less favorable position than the bees would place it themselves.

Inquiry. Would not the following plan be an improvement upon the preceding?

Wait for the issuing of a swarm. When they issue place them in a hive with box room for from 100 to 150 pounds of surplus honey. Remove the old hive and place the new one on its stand. Remove all the combs from the old hive; brush off the bees before the new hive on the old stand; and place all the worker brood in a small box in communication with the new hive. Throw the drone brood to the chickens, and dispose of or destroy the queen cells. By this method you secure two, and what would perhaps have been three colonies in one hive; and can hardly fail to secure surplus honey accordingly. You dispose of a large number of drones that otherwise would have consumed a portion of the surplus; and by disposing of the queen cells render swarming improbable for the season. You have your bees transferred to your new hive, and if that has surplus honey boxes of the aggregate amount of 200 pounds, you will probably have all of them filled with surplus, if the season is a very favorable one.

If you have non-swarmer hives, by adopting this method you may control them, and limit the number of swarms to the capacity of your field. JASPER HAZEN.

ALBANY, N. Y.

[For the American Bee Journal.]

How to Ventilate, so as to Save all the Wax.

When hiving a young swarm we put in about six frames, one containing honey and brood, and five empty ones —varying this according to the size of the swarm. Then we adjust the division board, and place the rest of the empty frames on the other side. The division board fits close to the honey board and to the sides of the hive, and extends to within about three-eighths of an inch of the bottom. This leaves a space for the bees to pass under, the whole length of the division board. The entrance to the hive is in the bottom board, instead of being in the bottom of the hive. Suppose we put the bees in the right hand side of the hive. We move the hive to the right on the bottom board, and this will make the entrance into the vacant side, instead of into the side where the bees are. If the bees cannot all get into that side, they will cluster somewhat in the vacant side, and on the following day, when many are out to work, they will have room enough ; and at night, when it is cool, they will all crowd into their own side. As soon as they need more room, place another frame on their side, and set it in the centre. When the young bees begin to hatch, two or three frames can be placed in at a time. Always put an empty frame between two full ones. You will soon perceive that there are other advantages, besides saving wax, by managing a swarm in this manner. The queen will occupy the entire comb with brood when the hive is full, or considerably more than she would under any other management that I have yet found out. Instead of commencing in the centre of the cluster, and extending her egg-laying for three weeks towards the outside, she can be depositing eggs all the time in the centre. She will consequently deposit nearly, if not quite double the number of eggs in the same length of time, that she would otherwise deposit.

I build up a weak swarm somewhat on this principle in the spring. But the bee-keeper has got to use some reasoning and judgment in these operations. It is almost impossible to give written instructions that can be followed to the letter.

The division board must be put in so that if it shrinks or swells, it will be enlarged or diminished up and down, or, as a correspondent writes to me, it may become immovable.

I had to puzzle my brains considerably to ventilate just right, so as to save all the wax ; but now, it is no trouble at all. I can hit right every time, and the simple directions given in this article ought to enable any of those experienced bee-keepers who, as Mr. Quinby says, know all about that division board, to do so with a little practice and the right kind of hive.

If it takes twenty pounds of honey to produce one pound of wax (and we know that it takes quite a large quantity), and bees can be so managed as to save all that waste (as they certainly can be), it would amount to quite an item in an apiary of one hundred hives.

This has been a grand season for bees, so far, in this section of country. Since the 9th of March, up to the first of June, we had only twelve days on which the bees could not do something outside of the hive. Natural swarms commenced coming out, with us, on the 21st of May ; the earliest I have ever known them to do so since I came west, twenty-one years ago. ELISHA GALLUP.

OSAGE, IOWA.

Another Bee-Flower.

A correspondent of the *Cottage Gardener* recommends the *Phacelia tanacetifolia*, or Tansy-leaved Phacelia, as an excellent bee-plant. He says—"It is a tolerably hardy annual, some seeds of which were brought into this country from California in the year 1832. Although but little cultivated, it is remarkable for its elegant foliage and fascicled spikes of violet flowers, which continue to blow during the greater part of the summer and autumn months, but chiefly in June, July, and August. It is easily raised from seed, which should be sown in the spring in ordinary garden ground. It requires no protection after the severe frosts are over. Besides being a great acquisition to apiarians and to amateur bee-keepers, on account of the special attraction of its numerous flowers for bees, it is highly ornamental, and deserves to be generally grown in flower gardens, and in the neighborhood of apiaries."

Dzierzon speaks highly of another species of this plant, the *Phacelia congesta*, the seed of which was sent to him by an enthusiastic Russian bee-keeper. He describes it as an annual of rapid growth, and flowering speedily even when sown in July on a pea patch, after the peas have been harvested. It is a large showy bush with leaves resembling those of the cypress, and blue flowers not unlike those of the *Echium vulgare*, or Viper's Bugloss, the famous Russian bee-plant, largely cultivated for bee-pasturage by Propokovitsch and others. In Silesia it continues to bloom till late in October, and is visited by bees after frost has cut off all other sources of supplies.

There are various other species of Phacelia found in the United States, east of the Rocky Mountains, from Lake Superior to the Gulf of Mexico ; but whether any of them are of much importance as a honey-yielding plant, we do not know.

DRONES when expelled from their colony by the workers, are apt to repair, to some extent, to queenless stocks. This fact has occasionally given careful observers the first intimation of the queenless condition of a hive not previously suspected.

[For the American Bee Journal.]

An Anecdote.

MR. EDITOR:—If you do not think the following worth publishing, just throw it in the waste paper basket; I shall not complain.

About six years ago, last winter, an agent engaged in selling a patent bee hive, came to my house. He had a model, made and finished off in the best workmanlike style. It was indeed a beautiful thing to look at. He very kindly showed me all its advantages, but none of its disadvantages. He said he had been a practical student of apiarian science for several years; that, after much research and experiment, he had invented the only hive known that was perfectly adapted to the wants and habits of bees. The Langstroth hive, he said, had some reputation, though it was nothing but a humbug. He told me that beeswax was *crystallized honey*, and how many pounds it took to make a pound of wax; and that the bees produced it by eating very plentifully of honey. He said a part of the bees worked on the cells as builders, another part labored in working up and preparing the wax as a mason works his mortar, and the other part acted as hod-carriers and delivered it to the builders. He then soared into the higher regions of apiarian science; said he had often seen the queen and the drone in the act of copulation; and could tell whether a queen was fertilized or not, as soon as he looked at her. He then gave me a minute description of the internal organs and functions of the queen, the drone, and the worker bee; and many other wonderful things which I do not now recollect.

I told him I had been keeping a few bees for a number of years, and though I had been trying to learn, I had only learned enough to know that there were many things in the internal economy of the bee hive that I did not know anything about. I then asked—how many legs has a bee? He answered *four*. How many wings? *Two*. Very well; there is one thing more that I wish to know, how does it happen that you know so much about bees, both scientifically and practically, and things too which no human eye can see, even with the aid of a microscope, and yet there are other things plainly visible to the naked eye, which you do not know? If I can see right a bee has six legs and four wings. This he would not believe or admit, till I procured a few bees and gave him ocular demonstration of the truth of my assertion. He then said I had a different breed of bees from any he had ever seen, and, judging by these numerous legs and wings, *they must be* a very superior race; and he thought that my superior race of bees and his superior hive would work wonders. Now, said I, my friend, you say that beeswax is crystallized honey. By parity of reasoning you would be bound to admit that *tallow* is *crystallized grass*, for every one knows that the ox by feeding plentifully *on grass* produces *tallow*. If you can demonstrate to me that tallow is crystallized grass, and tell us how many pounds of grass it takes to make a pound of tallow, I shall have more confidence in your scientific apiarian knowledge. He decamped immediately.

SPRINGFIELD, ILL. W. Y. SINGLETON.

[For the American Bee Journal.]

To Supersede Black Queens.

Any one who, when trying to Italianize a stock, has had as much trouble to find the black queen as I have had, will be glad if some plan can be devised to avoid this tedious and often fruitless search.

To those using the movable comb hive, I would suggest the following method. Give two swarms a little tobacco smoke, to alarm them. Then take out the frames from those hives, and brush all the bees back into the hives. Now divide the combs containing honey and brood into three equal parts, and shake all the bees into one hive, giving them one-third of the combs. Place this doubled swarm on a new stand. Put the rest of the combs, equally divided, into two hives; set them on the old stands; and into each insert an Italian queen cell; or, as soon as the bees return in sufficient numbers to prevent a queen from leaving, give each hive an Italian queen, temporarily caged.

The doubled swarm will soon destroy one of the black queens.

When wishing to increase the number of swarms, I see no reason why this plan will not be safe and effective.

The bees will be too much alarmed to quarrel; but should they be so disposed, a little smoke will subdue them.

If you are afraid to risk a new and valuable queen, you can let the hives stand till all the eggs are past being converted into queens; then cut out all the queen cells and your Italian queen will be safe with them.

If not wishing to increase the number of your swarms, add the bees from a strong hive to those of a weak one, smoking both of them thoroughly in the process. Place the hive from which you have taken the bees, with the combs and brood in it, on the old stand; and in a few hours you will have a good swarm without a queen, unless you have already introduced one for them. The weak swarm will be strengthened by the young bees which will remain in their new quarters. L. C. WHITING.

EAST SAGINAW, MICH.

[For the American Bee Journal.]

Hunting Wild Bees.

The following letter from Mr. Gallup, in reply to inquiries about searching for "bee-trees" in forests, has been communicated to us, and will doubtless interest such of our readers as reside in wooded districts, and are not familiar with this kind of "prospecting:"

MR. MERRILL:—Your letter is at hand, and in answer to your inquiries will say that I have had some experience in hunting bees. The old saying is that bees always go in a direct line to the tree; but that is not always so. They do not fly in a straight line against a strong head wind, but tack right and left, the same as a ship at sea with a head wind. In your case of finding a swarm up the mountain, they tacked to the right and left, and so confused you. You should have got a strong line of bees coming to one spot, and trapped them in a box. Then moved directly up the mountain with them, and let them out slowly, waiting till they formed a line. If they still confused you, conclude that the tree is still higher up. Proceed again as before, and when you have got as high up as the tree, or higher, the bees will go in a direct line to the tree. When you judge that you are in its immediate vicinity, cross-line them. Where bees are hunted for in a thick woods, I find that cross-lining them is the quickest course to adopt. I will explain. Set your bait in an open spot in the woods, and get your line. Set some pickets or spot trees. Trap a lot of bees, and move a half or a quarter of a mile at right angles to the line. Find an open spot; liberate your bees; and as soon as you have obtained the line, set your pickets. Now sight both lines through to where they cross, and you are somewhere near the tree. But recollect that should there be a considerable hill between you and the tree when lining bees, they will fly around the hill instead of going over it, unless it is a long one. They will also frequently go round a heavy grove of tall timber, instead of going over it. I once found a swarm on the edge of the high bank of a stream. When I first started them, the bees went directly west, but when I found them they were directly north. They flew west until they struck the stream, which they then followed around a bend to the tree. In that case, I trapped a large quantity of bees; and just before sunset, I opened a hole large enough for one bee to come out at a time, and then started on a run on the line. (You can see a bee a long distance just at sunset). By one bee coming directly after another, I could follow them as well as I could a rope stretched from the box to the tree. Of course I left the box where I opened it. For scent to attract the bees, I build a fire, heat some stones, and put a piece of comb or beeswax between the hot stones—putting three or four drops of oil of anise on the wax or comb before burning it between the hot stones. Then have some good honey in the comb, if possible, for bait and drop one or two drops of the oil on that also. Burn your comb and have your bait away from the smoke of the fire. At any time when bees can fly out and cannot gather honey, they will come to you, if you are anywhere near them. The holes to those I have found have been facing all points of the compass—some one way, and some another.

Should there be anything that you do not understand, write, enclosing a stamp, and I will endeavor to explain.

ELISHA GALLUP.

OSAGE, IOWA.

It is an infallable sign of queenlessness when pollen-cells are found enlarged and transformed to incipient queen-cells. And when the surface of the pollen in the cells is very uniformly glazed over, as though varnished or covered with size, it may safely be concluded that there is no queen in the hive.

[For the American Bee Journal.]

Respiration of the Bee.

Man breathes through his nostrils or through his mouth, and by this process throws off, in an invisible form, a large proportion of the food which he eats. In the case of the bee the same ultimate is attained, although the passages by which this breathing is effected are very different and very differently situated. Instead of breathing through its mouth, the bee breathes through a series of holes or *spiracles* situated along its sides. That the products of respiration from these spiracles are nearly the same as from warm-blooded animals (so called), I have abundantly proved by experimental investigation. Carbonic acid and water are the chief if not the sole products.

The amount of carbonic acid evolved by a moderate sized swarm is not very easily determined experimentally; but it is not difficult to arrive at an estimate which will be comparatively correct, by considering the amount of food consumed, and its composition.

Honey consists of twelve equivalents each of carbon, hydrogen, and oxygen, (C 12, H 12, O 12). Twenty-five pounds of honey are simply fifteen pounds of water united to twenty pounds of carbon or charcoal. It will thus be easily seen that when honey is consumed, either for making wax or for sustaining life, very large quantities of carbonic acid and water are produced. When the carbon of the honey is burnt in the process of respiration, it forms carbonic acid. Respiration, or rather the processes connected with respiration, are as truly an act of combustion as is the burning of the fire on the hearth; and the resulting carbonic acid is as dangerous to the bees as the fumes of sulphur, unless it is mixed with a very large proportion of air. We confined a few bees in a glass jar, and then introduced a quantity of carbonic acid carefully washed from all impurities. In a very short time the bees were all dead. Now, as is stated in a recent article by Mr. Adair, this gas (carbonic acid) is very heavy, so heavy that it can be poured out of one vesssel into another, like a liquid. We have repeatedly dipped up a tumbler full of it out of a large jar, and then, by pouring the contents of this tumbler on a candle, have extinguished the latter. How then does it happen that the carbonic acid, arising from the respiration, does not collect in the lower part of the hive, or in the lower part of the atmosphere in general, and suffocate all the inhabitants? Mr. Adair states that it does so fall to the gronnd. But in that he is mistaken, as the upper regions of the atmosphere are actually richer in carbonic acid than those at the surface of the earth. This is due to causes not pertinent to our present subject. If the facts were as Mr. Adair states them, the greater part of the surface of the earth would be uninhabitable. The amount of carbonic acid existing in the atmosphere is sufficient to form a layer over the entire surface of the earth to the depth of over ten feet. No ocean would be navigable except by vessels whose decks were elevated above this ocean of fluid poison. Every valley would be filled as with an invisible lake, in which the unsuspecting traveller would drown as certainly as if he stepped into a deep pool of water. From the mouth of every individual would proceed a stream of this invisible liquid, which would flow downward like a rivulet and collect in every hollow. The first sleep of the babe in its cradle, would be its last, for the exhalations of its own lungs would gather around its head and smother it. But all these results are avoided by the curious law known to chemists as the diffusion of the gases. By means of this law the poisonous gas produced by our breath is carried away from us, by a peculiar and special force of most wonderful power. Carbonic acid is not removed from the air of the hive by absorption, as Mr. Adair states. The comb has no power to absorb it; and if it had, it would not turn it black. Mr. Adair here confounds carbonic acid with carbon—two very different things. We have no reason to believe that carbonic acid is ever decomposed in the hive. The comb blackens by age and heat.

The agency of this curious law in the ventilation of the hive, must form the subject of a future article, as we see our space is exhausted.

J. P.

[For the American Bee Journal.]

How to make Natural Swarms Artificially.

First: blow in a little smoke at the entrance of the hive; then take off the honey-board and blow in a little more smoke at the top. Use but little smoke at any time when operating with bees. Take your jack-knife and uncap a considerable number of the honey cells at the top of the frames. Now give five or six smart raps on the hive with a small stick. Blow a little more smoke on the bees at the top; replace the cap of the hive, and let them rest about five minutes; they will be filling themselves with honey in the meantime. Blow a little more smoke in at the entrance, and then, with a stick in each hand, commence rapping quite smartly on the sides of the hive. In about ten or fifteen minutes you will have the queen and a swarm of bees in the cap. Have another cap in readiness; lift off the one with the bees in gently and turn it over, and place the empty one on it, so as to prevent the bees from flying. Let them remain thus five or six minutes, while you are replacing the honey-board and adjusting the old hive. Now take your two caps and carry them five or six rods, to where you want your new swarm to stand. Take off the upper cap, turn it over, and set it up leaning against something convenient. Now take the other cap and shake all the bees out into the one that is leaning up, so as to have the bees there all together. Let them set for about forty minutes, while you are getting a hive ready for them. Then go back to the old hive and take out a frame that has considerable honey and some brood, and put it in the hive intended for your swarm; for it is bad policy to set the young folks to keeping house without some provision for supper or a rainy day, whether it be a natural or artificial swarm. At the end of your forty minutes your bees will be all clustered and quiet, provided they have a queen, You can now hive them the same as any natural swarm, and they will work precisely like one in every respect.

But this performance must be done about swarming time, and when the bees are gathering honey. After the first swarm you will have queen cells to give to the old stock. Introduce one the next day after taking out the swarm.

In box hives, smoke your bees, turn over the hive, and give it two or three sudden jars on the ground to start the nectar or unsealed honey out of the cells, and use boxes fitting the bottom of the hive instead of the caps.

In all cases the bees must be perfectly filled with honey. We prefer to leave the old stock on its old stand. Some recommend removing the old hive and setting the new one in its place. In that case you leave none of the old working force in the old stock.

If done just right and at the right time, it will be just as near natural swarming as any method can possibly be. If you hive them immediately after dividing, without letting them cluster, they will nearly all go back to their old stand.

Suppose you fail to get the queen the first time, why, try again. You are almost sure to get her the second time.

In hiving a swarm, I always make it a point to see the queen.

I practiced this method for years, and sometimes practice it even now; especially if the season is an early one.

Elisha Gallup.

Osage, Iowa.

[From The London Gardeners' Chronicle, March 24, 1868.]

Disease among Bees.

The subject of bees and bee-keeping being frequently treated of in your columns, it may be of some importance to inquire into the causes and effects of a disease now prevailing in my own and some other apiaries. The first time it came under my own notice was four years ago, since which it has been increasing both among my own stocks and those of my neighbors. It appeared first with me in a strong stock in a new hive. About Christmas the bees began crawling out at the entrance, unable to fly; hundreds were dragged out by the living. They had a darkish appearance, and many seemed ready to burst. A clean new stand was given, in the hope of checking the mortality, but thousands of bees lay on the floor, some dead, others in a torpid state. They continued to die until May of that year, (1864).

In 1865, the bees of a hive well stocked with honey and bees, began to crawl out and were dragged out, as before. In 1866, I had four in the same condition. One, which stood many yards distant from the other diseased ones, was affected in a like manner, and died; and what to me appeared strange, was that in a short time, those hives on either side that stood nearest to this stock also died from the same cause, proving the infectious nature of the disease.

I have tried giving free ventilation to some, and keeping others more close; but there seemed to be no difference in the result. Another remarkable thing was, that the hive last mentioned had, when a year old, sent out a large swarm, which I placed about three yards from its parent stock. Just at the time that the bees of the latter were dying off, those of the swarm began to die also.

This season, (1867–8), I have two stocks fast dying, and one more appearing to be affected. I have at the present time some old stocks which are quite healthy, as are also the swarms which have come from them. How can this be accounted for, these hives being kept under exactly similar conditions to the affected hives?

If no remedy can be found for the disease, I propose to destroy every stock in which it makes its appearance, sparing none, with the hope of destroying all traces of it.

R. Mower.

[The disease which has attacked your apiary appears, from your description, to be a kind of dysentery, but somewhat allied to dropsy. We have known an apiary almost completely depopulated by it. A cure was effected by driving out or brushing off the combs all the bees of a hive, and knocking them down on a cloth at some distance from their stand. All that were not affected by the malady, rising on the wing, returned home; the rest were destroyed. This was repeated so long as there appeared to be any sign of it among them. Of course dry warm days must be chosen for the purpose.

Have you ever examined the combs of a hive so circumstanced? If not do so without delay. If you find, as we should not be at all surprised to hear, that the combs contain patches of abortive, dead or dried up brood, many of the cells having a small hole in their sealed covering, accompanied with a more or less offensive odor, you may at once conclude that your apiary has become infected with that terrible scourge, Foulbrood. If this be the case, you can hardly hope to effect its eradication, unless you make up your mind to destroy every stock, burying the bees and burning the combs. Taking every possible precaution to prevent the bees of your other hives gaining access to any of the honey. Scald out and well scrape out your hives, saturating them, inside and out, with a very strong solution of chloride of lime. If the hives are not used again for a year or two, all the better. We know an instance where, last year, nearly twenty hives died or were destroyed, in consequence of Foulbrood.

When you have examined your stocks report the result, and we shall then be better able to advise you as to the best means of affecting a cure.]

March 21, 1868.

DISEASE AMONG BEES.

Within a few days after the publication of the letter of your correspondent, R. Mower, giving an account of a peculiar disease which has for some four years caused considerable havoc among his hives, I have had the opportunity of witnessing, in a friend's apiary, an instance of what I consider to be the identical malady described by Mr. Mower so graphically. My attention was drawn to one hive in a garden containing perhaps twenty stocks, all with this exception being perfectly healthy and prosperous. Bees, dark colored and more or less distended or swollen, had crawled out of the entrance and lay dead or dying on the alighting board or on the ground below. The box was lifted off the floor-board, which was removed, and a clean board substituted. There were lying on it many—perhaps fifty—dead bees, all presenting the appearance so peculiar to this disease. The owner had followed this course of proceeding every day for a considerable time, always finding a fresh batch of dead or dying.

As far as I could judge, the bees had not been affected with that type of disease generally known as "dysentery." The floor-boards, as they were removed each day, exhibited little or no sign of the noisome excretion voided by bees suffering from dysentery. Should the plan hitherto followed fail in restoring health to the bees of this hive, my friend intends to secure the person of the queen, and establish her at the head of another colony, and destroy all the remaining bees.

If the plan recommended in your reply to R. Mower, be adopted, it should be borne in mind that the queen must, if possible, be captured and replaced in the hive standing in the accustomed position, prior to the knocking out of the bees on the ground. This, though very easily accomplished with movable frame hives, is a much more difficult process with ordinary hives. If the operator shall fail in his attempt to capture the queen, he must carefully renew his search, when the bees are shaken or brushed out on the cloth. I may add that my friend's apiary has on a former occasion suffered considerably from this disease, and that he does not believe that the infection is carried from one hive to another. The opportunity of observation I have had with regard to it, will not allow my giving any decided opinion on that point at the present moment. I hardly think from the description given by R. Mower, that the malady which has affected his stocks can be attributed to foulbrood, as under such circumstances the adult bees do not seem to be in any wise the worse for its presence in their hive, the destruction of which is simply owing to there being an insufficient number of bees matured to supply the loss of life from natural causes.

S. Bevan Fox.

The eggs from which workers and queens are developed, are perfectly identical. This has become an axiom in the theory of bee-culture. Nor could it be otherwise, for then it would be impossible to rear queens from worker eggs, as is done frequently every summer. and of which any one may readily assure himself, by inserting a piece of worker comb containing eggs and larva in a queenless colony.—Scholtisz.

A bee, if undisturbed after stinging, but left entirely to its own instinct, will endeavor to extract the sting by whirling around rapidly, and usually succeeds in getting away uninjured.

[For the American Bee Journal.]

Reproduction of Bees, &c.

Referring to the somewhat incoherent theory advanced in the February number of the BEE JOURNAL, page 144, permit me to submit my humble opinion in regard to the procreation of bees.

I believe, with Dzierzon, that all the eggs contained in the ovaries of the queen are male (drones), and that their eggs are changed to female (workers) by their contact with the drone sperm, and that alone suffices. The Supreme Orderer is the greatest economist of means, and no one will find Him using two ways, where one can suffice.

The new theory assumes that in order to become queens, the larvæ need to eat some worker eggs; and that the workers dose the incipient queen with worker eggs, and thus impregnate the larva, immediately on its disclosure from the egg, with the spermatozoids present in those eggs. Moreover, these two facts are assumed, as corollaries, namely, 1st—If worker larvæ have received some royal jelly, they become capable of laying drone eggs; and, 2nd—That Dr. Dönhoff has succeeded, by artificial impregnation, in rearing a worker bee from a drone egg.*

Let us examine these propositions.

I had last season some black swarms. These I deprived weekly of the drone comb they constructed, in order to prevent intermixture with my Italian queens. At the same time these swarms had to supply me with the workers required for my nuclei. They consequently remained weak, and none of them had the least disposition to build queen cells. Yet, each time that my nuclei were made queenless, or became simply broodless, even without hatching queens, drone eggs were deposited by worker bees. This continued from May to September. Again, in July, I found one of these black swarms without eggs or queen, but with drone eggs in queen cells, desposited by a fertile worker. Whence, then, came the royal-jelly-partaking worker bees?

Now, let us turn to the second proposition. After the bridal tour, the queen's seminal receptacle is full. At the instant when the eggs glide through the oviduct, it is either on the Wagner or the Bickford theory, or some other yet unknown, brought in contact with the orifice of the seminal receptacle, and one or more spermatozoids slides on the egg. But how is the sex changed? Here we must still content ourselves with mere conjectures. I submit mine.

The eggs in the ovaries contain the germ of one or more drones. But these germs are so slightly developed, that they are not perceptible by our best microscopes. On the other hand, the spermatozoids contained in fecundated or worker eggs, being more developed, are visible as soon as deposited. According to the law that the time required for perfecting bees, is five days for the workers, and ten days for the queens, shorter than for the drones, one of the spermatozoids grows faster than the drone-germ, absorbs it and fills its place. The germ or germs, unaltered by digestion, as the new theory supposes, remains in the new-born individuals, ready and multiplying for future generations, if placed in favorable circumstances, and so on. Consequently, if you can artificially put a newly deposited drone egg in contact with some drone spermatozoids, as did Mr. Donhoff, (a very difficult operation, indeed), you can change the sex of that egg. Yet, if the operation is delayed, the drone germ being more developed, the two male and female spermatozoids, combining together, become hermaphrodite, as suggested by Mr. Oldt, in the February number of the BEE JOURNAL, page 151.

Prof. Varro concludes the article referred to, by saying "Please, Brother Grimm, don't ask me to exchange one of my Langstroth queens for a pure Italian just imported." Why thus? Did Prof. Varro think that Mr. Grimm's imported queens are less pure than those of Mr. Langstroth? Yet, in his article on page 20 of the JOURNAL, Vol. 3, he avowed himself to be the owner of *Swiss* imported bees, producing queens and workers so exactly like those produced by his Langstroth queens, that a good judge might readily mistake one for the other.

Have the Langstroth bees more impeccability of temper? Yet, in the same article, Prof. Varro made no distinction, in that respect, between his imported and his Langstroth bees.

Is it the color? Allow me a digression. Ten or twelve years ago, wishing to replace by imported queens the Italian bees I had from Mr. Debeauvoys, I received at the same time two invoices—the one from Italian Swiss, the other from Lombardy. On their arrival, the latter were so light in color, comparatively, that I believed them purer than the former. But some months after, there was no longer any perceptible difference between them, in this respect. I then thought that the climate had an influence on their color; but subsequent observation led me to doubt the correctness of that conclusion.

Doubtless the weather can produce some effect on the color. But, to my knowledge, the *color of the honey consumed in rearing brood*, produces more effect on the color of the bees than the climate or the season. Here, last year, the month of May was unusually wet. A queen raised by me in that month, exclusively on stored buckwheat honey, was very dark colored. Another, partly raised on newly gathered honey, was sensibly lighter. Yet, my darker queen became so handsome, the following summer, that were I not sure she is the same, I should believe her changed.

Moreover, *the color of the honey sac placed in the abdomen influences the shading of the transparent rings.* In the buckwheat season, bees grow daily darker. Everybody can verify the accuracy of this statement. It, is owing to the *difference in the contents of the honey sac*, that two queens of the same race or variety are rarely alike. Let some one gorge a portion of his bees with colorless sugar water, and another portion with dark-colored honey, and the exper-

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*Dr. Donhoff so stated, in on of his earlier "*Contributions to Bee Culture*," published in the *Bienenzeitung*, but subsequently admitted that he may have been, and probably was, under an erroneous impression.—ED.

iment will satisfy him as to the value of color, so little fixed in Italian bees.

Instead of discouraging those who, like Mr. Grimm, try to introduce imported queens by the hundred, their efforts should be applauded and encouraged. The people of this country will, for many years to come, have to rely on Italy for the improvement of their bees. A great change and simplification in the process of importation is very desirable, so that the cost of imported queens might be much diminished, and a saving effected for the country.

I have undertaken, in concert with two queen-breeders in Italy, a series of experiments in that line. The arrangements made lead me to hope that two consignments may arrive in May, and reach me in good condition. If any of your readers wishing to obtain imported queens, would unite with me in ordering more extensive consignments, the advantage of such an arrangement could be more fully and conclusively tested.

In any event, I will give your readers the result of my trial. CHARLES DADANT.

HAMILTON, ILL., Feb. 14th.

[For the American Bee Journal.]

Bees in Missouri.

MR. EDITOR:—I have never met with any periodical which interests me as much as does the AMERICAN BEE JOURNAL. I take three political newspapers, some medical journals, the *American Agriculturist*, and the BEE JOURNAL; but none of these interest me as the latter does. I am very desirous of your welfare, and wish you great success in your undertaking to improve the bee-keeping public. Few men in this section of the country are at all acquainted with the habits of the honey-bee. I wish you may obtain many subscribers in these parts.

I beg to dissent from the late Prof. Varro's theory. I think the "fragmental dash" of his pen dashed his mind in the wrong direction—perhaps into the wrong hive of bees, where the queen was unusually prolific. Further observation will show that his views are erroneous, and his theory will fall to the ground unheeded. If I had never raised a queen bee, and knew nothing about it, he might possibly have made a proselyte of me. But I have raised as fine-looking and as good and prolific queens as I ever saw, in small nucleus hives, where there were no eggs from which to prepare the "royal peptone." Hence there was nothing from which to derive the "fragmental dash." Still, the theory may lead others to investigate, and good may result from it in the end.

Without detaining you longer on this subject, I wish to tell you how very prolific our bees are in Missouri. One of my neighbors found some bees at work in a small tree, which he cut off above and below the bees, and carried it home, setting or standing it by a tree in his yard. They worked well and produced five swarms from the parent stock. Some of the first swarms sent forth five more, making ten in all—the increase from one swarm in a single season. JOHN L. GREGG.

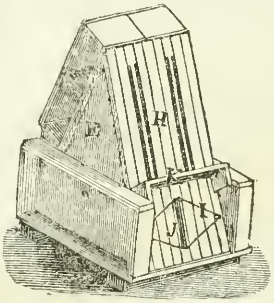
HOLDEN, MO.

[For the American Bee Journal.]

Bingham's Triangular Hive.

Mr. S. B. Replogel, in the May number of the JOURNAL, wants a frame hive with boxes as near the brood as the Langstroth form admits them; and that, while it shall not have more than eight frames, it shall contain honey enough, all above the bees, for their support in winter and yet not cost more than two dollars.

Herewith I send a cut of Bingham's Triangular hive, with four six-pound boxes in position on one side—as the shortest explanation of the hive he needs. The outside case is a square box, having a lid for a cover, and not shown in the engraving. This hive has all he requires, and much more than most bee-keepers suppose possible in a hive. It has the advantage of having been thoroughly tested for three years, and has met the most sanguine expectations.



It has seven frames in the form of the letter A, and accomodates eight shallow six-pound boxes at one time. They are not only nearer to the brood than the Langstroth boxes, but so situated that the bees fill them simultaneously with the hive, and yet never deposit brood in them, even if put on at the moment of hiving in one or two large swarms. The outside case (not shown) covers the boxes in summer, and holds the chaff or shavings with which the triangular part, containing the honey and bees, is packed in winter. No frost or dampness ever forms in the hive, or on the combs above the bees. The combs never fall or crack from either heat or cold, and are made *straight* with *winter passages* through them with absolute certainty. The heat generated by the bees is all concentrated in the small top of the hive, where all the honey is stored on seven frames.

Much has been written about upward ventilation, and no one seems to understand why doctors disagree. In my improved Langstroth hives I never use upward ventilation; neither do I in my Triangular hives. Yet for five years I have wintered from forty to eighty stocks in them, in the open air, in western New York; and I know that upward ventilation is worse than useless in any hives in which no frost or dampness forms. Who ever heard or even thought of upward ventilation in the old fashioned straw hive, where all the honey was in one small place, where the heat of the bees was concentrated and maintained by the thick straw walls of the hive? The great cry about water for bees finds an answer in the above question. In my hives no water forms at any season of the year; yet I have tried all sorts of plans to get the bees to take water, and have never succeeded unless the water was thoroughly sweetened. T. F. BINGHAM.

OBERLIN, OHIO.

[From the Maine Farmer.]

Some Items for Bee-Keepers.

Judging from the letters and queries we have received, the late discussion on Bee-Keeping before the Maine Board ot Agriculture, and the formation of a State Bee-Keepers' Association, has awakened much interest in the fascinating pursuit of bee-culture, which we hope will be largely increased throughout our State, through the instrumentality of this organization. The Association is now engaged in preparing a circular of inquiries embracing all points of interest connected with the management of bees, which will be sent to all bee-keepers in our State whose address is known, for the purpose of soliciting information to be incorporated into an annual report. This circular will probably be sent out in the course of a few weeks, and we earnestly bespeak for it the consideration of all bee-keepers.

Mr. Geo. W. Blanchard, of West Gardiner, one of the most intelligent and enthusiastic apiarians in the State, communicates to the last number of the AMERICAN BEE JOURNAL, his report of the past season's operations in this business, which we take pleasure in transferring to our columns. He says: "The past season has been a very good one for honey, though producing few swarms. I have taken 596 pounds of honey from seven hives of black bees. My practice has been to feed sparingly in the spring to promote brooding. I use Kidder's double hive. I have transferred black bees and introduced the Italian queen at the time of transfer, with perfect success." We should be glad to have other bee-keepers send us similar reports of their management and success.

Bee-keeping is a pursuit in which women have engaged with much zest, and in which many have achieved great success. The name of Mrs. Ellen S. Tupper, (a Maine woman by the way), is one that is probably well-known by all our bee-keeping friends, and her case is an instance of rare success won in a pursuit in which women seldom engage, but which is decidedly appropriate for them. The quick observation and gentle handling necessary to success in the business are the peculiar gifts of women, and there is no part of the business that may not be appropriately performed by them. The apiary of Mrs. Tupper, at Brighton, Iowa, is one of the largest in the country, and her article on Bee-Keeping, in the Report of the U. S. Agricultural Department, for 1865, is one of the best we have ever read. In concluding her article by recommending the business to women, she says: "It has proved to me of great benefit. I came west twelve years ago, under sentence of speedy death from one of New England's best physicians, yet now rejoice in perfect health restored. More than to all other causes I attribute the change to the interesting occupation which has kept me so much of the time in the open air and *paid me for being there.* I most heartily recommend it to others, who are seeking either health or a pleasant and profitable employment."

We have recently had the pleasure of examining the American Side-opening Hive, patented by H. A. King & Bro., Nevada, Ohio, which is being introduced into this State by Mr. C. Paine, of Charleston. It is a movable comb hive, and it is so constructed that one entire side can be removed whenever it is necessary to brush out the litter either in winter or early spring, or when new swarms are hived. It is also so constructed that no air space is allowed between the frames and honey boxes, and this air space in some other hives is not an advantage but in fact otherwise, as it causes a great waste of heat. Boxes are put on to receive the surplus honey. The ventilation of the hive is very perfectly obtained.

The operation of transferring bees from the common hive to a movable frame hive is a matter not so difficult of performance as one would seem to infer from the description given of the same. It requires a steady hand and some pluck, but we were most agreeably surprised the other day on being told by one of our subscribers, whose wife is a practical bee-keeper, that she has often performed the job with good success, besides doing all other work necessary about an apiary of considerable size. We hope that like Mrs. Tupper, of Iowa, she may make her fortune by the business. It gives us pleasure to record such instances of woman's success out of the ordinary course of her daily duties. If more of it were practiced women would have better health and more happiness.

If a person want to know all that is necessary about bees and their management, without reading too much secondary matter, we would recommend to them a little work by H. A. King & Bro., called the "Bee-Keeper's Text Book," which is sold by Mr. C. Paine, of Charleston, in this State. Although written in favor of a certain hive, yet it contains an abundance of reliable information, and plain, simple directions for all bee-keepers. It is a work we have before commended, and is well worth the price, 50 cents in paper covers, 75 in cloth.

Mr. R. D. Paul, of Farmington Falls, communicates his success in artificial swarming or dividing. He writes: "I had one hundred and thirty colonies in 1867, and no natural swarming was allowed, with one exception, which was the fifth swarm from one. It was a native swarm. In April I introduced an Italian queen, and divided them three times, making four swarms. One of these sent out a swarm Aug. 10th, thus making five swarms of Italians from one native colony in five months. They all bid fair to winter well."

Some interested in bee-culture have expressed a wish to have a public exhibition at some central point in June next, at which bees and hives can be shown and an interchange of thought and opinion brought about. One of the most successful bee-keepers in the State writes us as follows: "Should an exhibition be held in June next, Mr. Paul and myself propose to show the method of transfer of bees, with the introduction of queens, and also a colony of Italian bees on one comb,—the frame of large size, in order that the queen can be seen by all who wish." We should like to hear from our readers who are bee-keepers upon this matter, and hope they will give us their views upon the desirability of such an exhibition. If bee-keepers show sufficient interest, we have no doubt it will be held.

[For the American Bee Journal.]

To Introduce Queens Safely.

MR. EDITOR:—I see by your JOURNAL that bee-keepers still use the wire cage for introducing queens in deprived colonies. I have a better plan, which may be of benefit to those who are in the bee business, saving time and avoiding risk. It is as follows:

Dissolve four ounces of sugar in one pint of water, and add one ounce of essence of peppermint. Take out your frames, and sprinkle the bees well all over with the solution. Then replace the frames, and put in your queen, and the bees will not disturb her.

I introduce all my queens in this manner, and have not lost one yet. H. FAUL.

COUNCIL BLUFFS, IOWA.

[For the American Bee Journal.]

Bee-Feeder.

The following was suggested after reading the last number of the BEE JOURNAL.

A simple, safe, and cheap bee-feeder for the Langstroth hive is made of a Lyman self-sealing fruit jar, or other pattern jar, with suitable top. The principle is to have a vacuum and no vent on top; thus you may tap it like a barrel of cider, but unless you give it vent nothing will run out.

Punch holes in the tin top of such a jar, close together about the centre, and then solder a piece of the finest wove wire,* such as is used on milk strainers, over the holes. Fill the jar full of liquid honey or sugar syrup made of about the same consistence; press on or screw on the cover, according to the kind of jar used, perfectly air-tight; then turn over quickly bottom up, and nothing will run out, only as the bees suck it through the wove wire. In use, place it over the hole in the honey board, over the cluster of bees. Water can also be given to the bees in the same manner.

This bee-feeder was suggested by bird water-glasses and ink-stands that I saw east. I have used nine during the last six weeks with good success.

Referring to the article "CRITICISM," on page 188 of the April number of the BEE JOURNAL, and "how to make all swarms equally prosperous," I would like our bee-keeping friends to answer, through the JOURNAL, whether they have ever tried the experiment of removing the queen of a stock not up to time, and giving them a sealed or young queen, or brood from a prosperous colony, from which to raise one—and the effect it had on the unthrifty colony? JOHN M. PRICE.

BUFFALO GROVE, IOWA.

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*Wove wire, if of brass, would be apt to generate verdigris if not carefully attended to, and produce foulbrood in the colony. It would be well, therefore, to employ some substitute not liable to this objection.—ED.

[For the American Bee Journal.]

Artificial Natural Swarming.

Opening one of my hives sometime ago, and lifting out a frame, I saw the queen among the crowd of workers, and distinctly heard her *piping*—which she continued to do while I held the frame in my hand. Concluding from this that there was another queen in the hive, I proceeded to search, and found a closed queen cell on one of the combs, so placed that its apex nearly touched the lower cross-piece of the frame, thereby preventing the enclosed queen from emerging in the usual manner. On cutting open the cell I found a perfectly mature queen in it, which I seized and confined in a cage. Returning the frames, I replaced the honey-board and removed the tin cover from one of the holes; on this I laid the cage, set a glass tumbler over it, and shut the hive. I intended to take away the caged queen after examining some other colonies; but in a few minutes a swarm hurriedly issued from this hive, and settled on a tree close by. Supposing the old queen had accompanied the swarm, I inconsiderately liberated the young one, and let her enter the hive. I had scarcely done so, when the swarm returned, as hurriedly as it had left, and re-entered the hive. I had not leisure then to re-examine the hive, but on doing so next day, found the colony queenless. Doubtless the old queen remaining at home had unexpectedly encountered her rival, and the very rare case happened that both were killed in the deadly fray.

This colony was not populous and could scarcely have contemplated swarming; the purpose of raising a young queen being, most probably, to supercede the rather unprolific old one.

But can swarming be incited by introducing a caged queen in a colony, or placing one thus over a hole in the honey-board? If so, might we not manage to relieve ourselves of the trouble of *driving* out swarms, by properly availing ourselves of this circumstance? In driving we are not always successful in securing the queen; and it would seem that in this case she lagged behind. Yet any difficulty from that cause could easily be overcome by means of the reserve queen confined in the cage, which could be given to either stock, as circumstances might require. But the first matter is to ascertain whether such process will produce a swarm. J. POUNSFORT.

MICHIGAN.

☞ Perfect queens are occasionally so small that it is difficult to distinguish them from workers; and very expert practical apiarians have sometimes been unable to find the queen in a hive where healthy worker brood was regularly produced, and which consequently must have had a normal queen.

Why on earth do people think it fine to be idle and useless? Fancy a drone superciliously desiring a working bee to stand aside, and saying—"out of my way, you miserable drudge; *I* never made a drop of honey in all my life."—*Country Parson.*

THE AMERICAN BEE JOURNAL.

WASHINGTON, JULY, 1868.

☞ The American Bee Journal is now published monthly, in the City of Washington, (D. C.,) at $2 per annum in advance. All communications should be addressed to the Editor, at that place.

Our New Volume.

With this number we commence the fourth volume of the American Bee Journal. A constantly growing subscription list induces us to continue the publication, in the expectation that it will ere long secure the support indispensable for permanent success. Almost every mail brings us flattering letters of encouragement and strengthens our hands with the material aid without which it is impossible to sustain a periodical devoted to a specialty. Still the accessions to our list are not as numerous as they should be, to enable us to prosecute the undertaking with ease and cheerfulness. It is true, the Journal now circulates in nearly all the States and territories of the Union, and in the British provinces. But it should reach every county and township in all this wide extent of country; for bee-culture can be profitably conducted almost everywhere, and bee-keepers whom the paper would interest and benefit dwell in all these borders. Will not the numerous fast friends of the Journal aid us in endeavoring to reach these and securing their support, by presenting, in their respective neighborhoods, the claims of a publication which we know they prize and "would not willingly let die."

This being a busy season with practical bee-keepers, when few of them have leisure to write, we have taken the opportunity to withdraw from our files and insert this month, a number of articles long deferred, but by no means neglected or forgotten. Others still remain, most of which we expect to be able to present in our next issue.

The June number of the "*American Naturalist*" contains the most complete account of the parasites of the honey bee to be found anywhere in the English language. The article is from the pen of Dr. Packard, one of the editors, and should be read by every bee-keeper who desires to acquire a satisfactory knowledge of the numerous insect enemies to whose attacks the bee is exposed in every stage of its existence. The chief of these foes are minute ichneumon-flies and beetles, or their larvæ, most of which are figured on an enlarged scale on the two plates which accompany and illustrate the article. The subject, of course, is not exhausted, as hardly any branch or subdivision of natural science is ever likely to be; and the writer, in the concluding paragraph, says he "would be greatly obliged for material to aid him in the study of our bees and wasps; would take pleasure in corresponding with those interested in the study of their habits; and would be very grateful for specimens of the young in alcohol, their parasites and nests."

The *American Naturalist* is published monthly, at Salem, (Mass.,) by the Peabody Academy of Science, at three dollars a year. It is handsomely illustrated, and may truly claim to be "a popular magazine of natural history," deserving as such a liberal patronage and extensive circulation.

Mr. Harrison, of Frederick, Md., has sent us a sample of his "Nucleus Bee-Feeder," a modification of the Bee-Feeder noticed in a previous number of the Journal. It is a neat and convenient article, and will doubtless be useful to those who are raising queens in nucleus hives.

☞ We are now in receipt of several additional German periodicals devoted to practical bee-culture, which, with the favors of our numerous correspondents, will enable us to impart increased value and interest to the pages of the Bee Journal.

Correspondence of the Bee Journal.

Tompkins, (Mich.,) Feb. 28.

I learned with regret the death of Prof. Varro. Although I could not endorse all his opinions, I read his articles in the Journal with a great deal of interest and pleasure, and think they will be missed very much in future by its numerous readers.

Very many of us take a deep interest in the success of the American Bee Journal. Other papers are often received, glanced at and thrown aside; but the Journal is always a welcome visitor, and the business must be very urgent that prevents a perusal of its pages as soon as it is received. From every number we obtain some valuable information. We also become acquainted with its numerous contributors, scattered over a large portion of the country. By reading these writings, we form an opinion as to their character, and *imagine* their personal appearance. In their monthly visits, we learn to regard them as friends, as brothers, as members of the same family, embarked in the same business, engaged in the same interesting study—that of the honey bee, its habits, and its natural history; and when one of the number is removed from us, the loss is *felt*. The Professor was sometimes severe in his criticisms, but his exposures of parties engaged in swindling a credulous bee-keeping public, were just. There are one or two articles in late numbers of the JOURNAL, which may be regarded as open to severe criticism, and I had hoped to see them handled by him, as he alone was capable of handling them.

J. H. TOWNLEY.

BROOKLIN, CANADA, March 9.

I was much surprised to hear of the death of Prof. Varro. It is to be much regretted. Though he might by some be considered ultra in his opinions on bee-culture, yet he was a learned and spirited writer. With a style peculiarly his own, he "laid out" his antagonists with "rare wit." His contributions to the BEE JOURNAL, though at times somewhat ambiguous, were of much value. Doubtless the readers of the JOURNAL will feel his loss.

J. H. THOMAS.

[For the American Bee Journal.]

The Egyptian Bee.

Having recently received a file of the back numbers of the "AMERICAN BEE JOURNAL," I find an inquiry from L. L. Fairchild, on page 173 of Vol. II, respecting the comparative fertility of queen bees of *apis fasciata* and the honey-storing capacity of the workers. As no reply appears to have been made to this question, I may state that the Egyptian queens are decidedly smaller than those of the Italian or the black bee, and in my opinion inferior to either in point of fecundity. The workers also, being smaller, cannot carry such large loads, and have not therefore the honey-storing power of either of the other species named. With regard to their extreme irascibility it may be perceived, by referring to page 164 of the same volume, that I distributed my remaining Egyptians among four British apiarians, three of whom made public their experience,* (which fully confirmed my evidence as to the ferocity of these bees, whilst the fourth, Mr. George Fox, whose letter alone found admission into the "AMERICAN BEE JOURNAL," happens to be one of those fortunate individuals whom bees never appear to sting under any circumstances, and who may therefore well be able to manipulate even the savage Egyptians with impunity.

T. W. WOODBURY.
("A Devonshire Bee-Keeper.")

MOUNT RADFORD, EXETER, ENGLAND, 30th April, 1868.

* ☞ We presume that the experience of the other three British apiarians, to whom Mr. Woodbury consigned Egyptian bees, was published in some numbers of the *Journal of Horticulture*, or other London periodical, which did not reach us, as we had no previous knowledge that any such accounts had appeared. The German periodicals, which reach us more regularly, furnish no additional information respecting those bees—the Carniolian variety of the common black bee exciting more interest at present among bee-keepers; though, so far, its disposition to swarm frequently, and thus multiply rapidly, seems to be the only traits that are urged in its commendation.

Bees and Fruit.

The following letters respecting the alleged damage done to fruit by honey bees, were sent to us for publication by Mr. Gould, of Wenham, Mass., months ago, and should have appeared sooner, but for our limited space and the crowded state of our columns. The first is from the eminent botanist, Asa Gray, Professor of Natural History in Harvard University; and the second from Dr. H. A. Hagen, late of Konigsberg, Prussia, but now of Cambridge, Mass., a learned and distinguished German entomologist, who has paid especial attention to collecting and making a list of all the works and papers relating to bee-culture. Prof. GRAY writes—

"HARVARD UNIVERSITY, Feb. 17, 1868.
I thoroughly endorse the correctness of Dr. Packard's statement. There is no doubt that the sole use and object of honey in blossoms is to attract insects, so that they may in their visits carry pollen from the stamens of one flower to the stigma of another, and in that way *insure the formation of the fruit*. I have no idea that the honey after being secreted by the plant into the open flower, is ever taken up again by it; so that the plant loses nothing it could ever use by the bees carrying off the honey."

Dr HAGEN says—

"I have never known and find nothing in the literature of bee-keeping now at my hand, to prove that bees are obnoxious to fruit and to fields. I think it is possibly a mistake, for other hymenoptera, *i. e.* that other insects of the group (hymenoptera) to which bees belong, may do the alleged injury."

We have not heard whether the venom of the Wenhamites culminated in the actual banishment of Mr. Gould's bees or evaporated in the vote of the town meeting.

[For the American Bee Journal.]

"Mathematics" of the Honey Bee.

MR. EDITOR:— I have not received my JOURNAL for last month, and would rather lose one number of all my other papers (some five or six) than the BEE JOURNAL for any month.

I cut the subjoined from the New York Tri-Weekly *Tribune*. It is from a notice of a work lately written by Mrs. Agassiz and her husband, the Professor.

"The following agreeable bit of natural history will be read with interest, for the curious process of insect architecture which it explains, as well as for the light it throws on the much vaunted "mathematics of the bee" in the construction of its cell.

"'For some time Mr. Agassiz has been trying to get living specimens of the insect so injurious to the coffee tree; the larva of a little moth akin to those which destroy the vineyards in Europe. Yesterday he succeeded in obtaining some, and among them one just spinning his cocoon on the leaf. We watched him for a long time with the lens as he wove his filmy tent. He had arched the thread upward in the centre, so as to leave a little hollow space into which he could withdraw; this tiny vault seemed to be completed at the moment we saw him, and he was drawing threads forward and fastening them at a short distance beyond, thus lashing his house to the leaf as it were. The exquisite accuracy of the work was amazing. He was spinning the thread with his mouth, and with every new stitch he turned his body backward, attached his thread to the same spot, then drew it forward and fastened it exactly on a line with the last, with a precision and rapidity that machinery could hardly imitate. It is a curious question how far this perfection of workmanship in many of the lower animals is simply identical with their organization, and therefore to be considered a function, as inevitable in its action as digestion or respiration, rather than an instinct. In this case the body of the little animal was his measure; it was amazing to see him lay down his threads with such accuracy, till one remembered that he could not make them longer or shorter; for, starting from the center of his house, and stretching his body its full length, they must always reach the same point. *The same is true of the so-called wathematics of the bee. The bees stand as close as they can together in their hive for economy of space, and each one deposits his wax around him, his own form and size being the mould for the cells, the regularity of which when completed excites so much wonder and admiration. The mathematical secret of the bee is to be found in his structure, not in his instinct.* But in the industrial work of some of the lower animals, the ant for instance, there is a power of adaptation which is not susceptible of the same explanation. Their social organization, too intelligent, it seems, to be the work of any reasoning powers of their own, yet does not appear to be directly connected with their structure. While we were watching our little insect, a breath stirred the leaf and he instantly contracted himself and drew back under his roof; but presently came out again and returned to his work.'"

Now, while the learned Professor and his lady, and the writer of this notice, are thus throwing stones at the mathematical ability of our little pets, I should think Huber would move in his coffin and his sightless orbs shed tears of vexation; Langstroth feel a pang not caused by his disease; and Quinby say, the lady's bees may make cells in that way, but mine do not! When you give this to your readers, how many among them will believe it? The tame mink man is the only one who could make me receive it. If he endorses her views, I shall of course have to *cave.*

It is rather late in the day for the "high learned" and scientific to send forth a work promulgating such views. The idea that bees, in comb-building "stand as close as they can together," each making "his own form and size the mould for the cells," must have been concocted in the study, for it certainly could not have been derived from observation. The erudite reviewer, too, is to be congratulated on the light he has thus felicitously obtained on the "mathematics of the bee." Much "wonder," unquestionably, but very little "admiration" indeed, is excited, when one meets with such delectable specimens of analogical reasoning, the erroneousness of which ordinary eyesight well employed, without the aid of a "lens," would detect at a glance.

B. F. Babcock.

Afton, Minn.

[From the St. Charles (Mo.) Cosmos and Sentinel.]

The Battle of the Bees.

On Saturday of last week a terrific apiarian conflict took place at the Rev. W. H. Vardeman's, in Cuivre township, in this (St. Charles) county. It is not known what number of combatants were engaged in the fight, but their name is Legion.

Mr. Vardeman had nine stands upon a single bench or platform, and the conflict began between the inmates of two stands that were separated from each other by several intermediate hives. At first only a few of each garrison were engaged in the conflict, but as the fight progressed and the fray waged fast and furious, not only the fighting materials of the belligerent garrisons, but also that of the neighboring stands, were drawn into the conflict. It is supposed by those who witnessed the fight, that all the war material of the several garrisons was put in requisition, and it is even hinted that several of the fair queens unsexed themselves, and by their presence gave aid and countenance to their respective favorites. Certain it is, there were but few "sympathizers" who did not take part in this battle.

The fight is represented as the most furious one of the kind on record. The great captains of the day deported themselves with great valor and intrepidity, and carried on exterminating war, until the number became so great that the air was fairly blackened with the bees. The fight continued for nearly two hours, until one party seemed to give way and the combat slackened. Hundreds of bees perished in the fight, and hundreds of others were wounded in the fray and died from their wounds afterwards. It was not till the going down of the sun that the cries of the wounded and the shouts of the victors ceased, and order was once more restored. The ground in the vicinity was literally covered with the wounded and dying.

The origin of the fight is unknown. Whether it was some old feud, handed down from sire to son, between some ancient houses of York and Lancaster in the Bee Kingdom, or provoked by some raiding band of bushwhackers, who desired to appropriate the golden fruits of others' labor to their own use; or whether some "ladye fayre"—some Helen Apis—was in the case, is not recorded.

[For the American Bee Journal.]

Do Queens Mate with two Drones?

It has occurred to me that queens sometimes mate with two drones, from the fact that I have frequently had Italian queens whose progeny, when they first commenced depositing eggs, appeared almost pure, and after a few weeks would change almost entirely to black; and, again, after some weeks, or sometimes months, the progeny would change back again.

This changing I have noticed both with the Italian and black queens in half a dozen or more cases, within the past four years.

While examining a small nucleus last season, I saw the queen had just returned from her bridal tour, showing the usual signs of having mated with a drone. The next day I opened the nucleus to ascertain, if possible, how long before she would commence depositing her eggs, (as some writers profess to tell us the time), and to my surprise she was not *in*. I am sure she was not, for she was a large well colored Italian, and the bees in the nucleus were few in number and of the black race. I could therefore easily have found her, but she was not *in*.

I opened and looked again in a short time, and saw her bearing fresh signs of having met with a drone or drones. Two days after this she was depositing eggs, which produced black bees for some weeks; and afterwards others, as bright almost as pure bred bees, proceeded from the eggs she laid. This spring the progeny is black again; though a great majority of the bees bear the shape, but not the stripes, of the Italian—while others having the shape of the common black bee, have one or two stripes or bands.

Did not this queen mate with two drones? or why the change in the color, markings, and shape, of her progeny?

If birds and animals will mate with two of the other sex, why may not insects also?

I wish your scientific readers would give this their attention, and devise some way that we may have our queens mate with the kind of drone we wish to breed from. Cannot we Americans do what a German has done? Let every reader of the JOURNAL try some experiments of his own this summer, and I feel sure we shall accomplish the much desired end.

H. NESBIT.

CYNTHIANA, KY.

[For the American Bee Journal.]

Bees in Tennessee.

We have the finest bee country here in the world. White clover is becoming the spontaneous growth of our bottoms. Besides, we have an abundance of other bee pasturage, which lasts all the time that bees can be out.

We have no patent hives here yet, nor any Italian bees; and I hope to get some instructions in regard to both from your paper—of which send me the back numbers for the present year.

Forked Deer River Bottom, near where I live, abounds with wild bees. You cannot place honey out anywhere in it without its becoming in a few minutes covered with bees.

Will some of your experienced bee-men give me some instruction as to the best mode of hunting bees, and the best time to do it? I have heard a great deal about "coursing" bees, but I do not believe that one bee in a hundred will fly in a direct line for its hive, when leaving the bait. I have watched them, after circling for some time, start off in an apparently straight course for the hive; but they would then curve so much as to leave me in entire uncertainty as to the direction they went. Nor is there any indication of the elevation of the hive from the ground, by noticing the height to which the bees will rise, in circling, before leaving; as all bees, when passing through woods, homeward bound, will fly over the tops of the tallest timber.

I would be glad to hear from some of your correspondents on this subject.

S. W. COLE.

ANDREWS CHAPEL, TENN.

☞ In the February, March, and May numbers of the last volume of the BEE JOURNAL, our correspondent will probably find the information desired.

[For the American Bee Journal.]

MR. EDITOR:—Can you inform me what is a neutraliser or solvent of beeswax and propolis, to remove it from glass or cloth?*

Bees are in good condition here this spring, having been well supplied with honey last fall.

In the statements of your correspondents, boasting of the productiveness of their bees, I have not seen anything better than that of a colony I sold to a neighbor, which yielded him last season four swarms. The first swarm swarmed twice; and two of the casts swarmed also—making in all seven from one. Two of these went to the woods. The remaining five became strong and rich for winter. The old colony and the swarms yielded, besides, eighty pounds of surplus honey.

I have an Italian queen that was reared last fall. On the 12th of March she had only one inch of comb filled with eggs. On the 23d of April she produced drones, principally even in worker cells. The lower part of her abdomen is enlarged, so that although she is very intent on laying eggs, she only succeeds in getting one deposited after several efforts, and it is then placed at half the depth of the cell.

At this date she has ceased to produce any workers, and very rarely is a drone produced in the worker cells, while the eggs she is now laying in drone comb are developing uniformly. I gave fifteen dollars for her last fall. If you wish to experiment with her, I will freely send her to you. I think she must have dropsy, or an enlargement of the ovaries.

R. WILKIN.

CADIZ, OHIO, May 16, 1868.

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*Propolis may be removed from glass by means of alcohol, and wax by a solution of potash. Cloth would probably be injured by the latter.

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[From the German of Kohler.]

Practical Bee-Culture.

RE-QUEENING AND FALL REDUCTION.

In a recent communication to the *Bienenzeitung*, the Baron of Berlepsch states the result of a carefully arranged experiment which shows that, at least *five or six weeks elapse from the time the egg is hatched till the worker bee engages actively in the gathering of honey;* or, in other words, becomes converted from a *consumer* to *a producer*. I made similar observations last summer, and some memoranda in my possession made prior to the publication of the Baron's article, coincide very precisely with the results obtained by the latter. Though my observations were not made with the view of establishing or maintaining any *theoretical* proposition, yet *practically* I had often to wait a wearisome while before I could see workers, hatched from the eggs of a newly reared Italian queen, fly and participate in the out-door labors of the older bees. Yea, like the Baron of Berlepsch, I have counted hours and days, and when, as frequently happens in the case of a young queen, we have to enumerate "thirty-five," or "thirty-six" days, we hardly need note down the number in the diary in order to impress the fact on the memory.

But, why advert to this matter *here*, on pages dedicated primarily to suggestions and counsels of practical import? Patience, gentle reader; we shall in due time see the practical value of the theoretical proposition referred to. In practice it is, indeed, of far greater significance than seems apparent at first blush, or than the unobservant would imagine. Still, we will now refer to two cases only in which the question —*how much time elapses from the hatching of the egg till the workers gather honey?* deserves special consideration from the bee-keepers who would not suffer disadvantage and loss without becoming conscious of the fact, or even suspecting the truth.

There is hardly any bee-keeper who is not occasionally surprised by finding a queenless colony in his apiary. Nay, it will happen even to the most competent, that days and even weeks elapse before he becomes aware of the queenlessness of a stock. The deportment of the bees at the loss of their queen, and the phenomena indicating queenlessness, are not always the same, or are not always manifested in the same decided and striking manner; or those manifestations are made when the keeper's attention is drawn elsewhere; and finally he finds himself suddenly, he knows not how, the owner of a queenless colony. Now the question forces itself on him—*what is to be done?* If *he* does not take the case in hand, and that right speedily, the robbers and moths certainly will, and make short work of the job too;—leaving him a hive bare of bees and honey, but rich in the larvæ and coccoons of the moth! Think not that I am exaggerating. My own eyes have seen such a scene of thorough and utter devastation. I once designedly consigned such a queenless colony to its fate. The experiment cost me nearly twenty pounds of honey and sixteen combs of wax, without counting the vexation, and the time and labor required to cleanse the hive again, and exterminate the multitudinous horde of devourers, more greedy and insatiable than the horse-leech's daughters. The experiment was nevertheless interesting and instructive, as demonstrating the necessity of prompt action when a colony becomes queenless. But, the inquiry recurs—what is to be done in such a case? *Cure* or *kill*, that is the question! Most of our bee-writers would doubtless advise the former; but the theoretical principle demonstrated and enunciated by the Baron of Berlepsch, indicates clearly that recourse to the latter expedient would be, in the great majority of cases, clearly the more judicious and advisable course. In two cases only, would recourse to curative means seem at all advantageous—first, namely, while the bee-keeper is still intent on increasing the number of stocks; and secondly, while engaged in italianizing his apiary. In the latter case, the occurrence of queenlessness, if speedily discovered, may exempt him from the trouble and annoyance of hunting and removing the old queen—being thus rather advantageous than disadvantageous. But in every other case, the only advisable process, is to *break up the colony at once,* using the bees to strengthen some weak stock, and giving the combs to a strong colony for protection or use. However much this may run counter to the feelings of the bee-keeper, it will certainly best advance the prosperity of his apiary, and thus promote his pecuniary interest.

Cure should only be attempted if a *fertile reserve queen* be immediately available, and *at least eight weeks of good pasturage may yet be expected.* In such case the young bees proceeding from the eggs of the introduced queen may still participate for three weeks in gathering in the harvest, and thus reimburse their cost. But to begin even with inserting a queen cell eight weeks before the end of the season, leaves no hope of profit, though no mishap supervene—for we must still allow an interval of from ten days to two weeks, before brooding would be vigorously recommenced, if the colony be still populous; and if weak and broodless, as such queenless stocks usually are, brooding will proceed so slowly and listlessly that there is small chance of effectual recuperation. In short, nothing will come of it! To insert brood for queen-raising is a still more unpromising expedient; for thereby the day of relief is put off almost two weeks longer, and if the young queen is not lost on her bridal tour, we may indeed have a redeemed colony, but one that will only linger along during the remainder of the season, consuming honey and storing none. Though seemingly busy in gathering, its supplies will in the end be constantly diminishing. In the fall it will need feeding, and will notwithstanding probably perish in the winter. Whereas, had it been seasonably united with some other colony, its stores would have been preserved, and the entire population would have joined the common household as a band of busy workers. Here they would be of infinitely more service than they could be in their native hive, after the loss of their queen; for though a colony under cure for queenlessness seems to labor industriously, bees never really develope and display their full energetic activity unless there be a queen and brood present, and the entire colony feels itself to be in a normal and healthy condition. In a colony that has been queenless, revived and increased energy will therefore only be manifested when the cells are again stocked with brood proceeding from the new bred queen, requiring constant nursing and attention. Consequently where increase of colonies is no longer our object, but we desire to derive profit from the stock on hand, the attempt to *cure* a queenless colony, is a gross blunder. This is a truth, a *practical axiom* in bee-culture, flowing with logical and inexorable rigor from the recorded observations already referred to, respecting the time elapsing from the hatching of the egg to the honey-gathering of the worker.

But in the foregoing we have assumed that queenlessness occurs at a very early period in the season; whereas it more frequently occurs late, or is not discovered till late. Queenlessness most commonly occurs at the swarming season, when the old stocks are raising new queens. And it is precisely in the case of stocks that have sent forth swarms, that queenlessness is most difficult to detect, and is usually detected very late. We naturally expect that such stocks should for a time seem weak, and flatter ourselves that "when the young queen's brood hatches matters will improve." Time passes while we are thus listening to hope's flattering tale, and we finally wake up to the consciousness that there is no queen there! Now, in four or five weeks, possibly in only three, pasturage will be at an end; and shall we waste further time in "*doctoring up*" the rapidly dying invalid? Far better make short work of it, by applying the royal remedy! BREAK IT UP!

But even in so-called "fall reduction," the theoretical principle aforesaid has a practical application; for it is of great importance to the bee-keeper to know *when* this reduction is to be made. The rule commonly laid down in the books is "at the close of the season;" that is, at the time when the bees cease to increase their stores; or, in other words, when they gather less daily than they consume. In view, however, of the result of the Baron of Berlepsch's observations, as confirmed by my own, showing the time required to convert a worker bee from a consumer to a producer, the rule thus laid down would lead to gross malpractice. *The work must be begun much earlier.* Fall reduction, by the union of colonies, to effect the utmost saving and prove really advantageous, must be executed *at least five weeks before the close of the season.* For all the brood proceeding from eggs laid by the queen during this latter period, *will render no service of any account during this year.* A diminution of the brood at this period is therefore a necessity, because a large portion of the accumulated stores would be consumed by it, for which no compensation would this year be returned. But if the reduction be accomplished, by the union of colonies before the close of the pasturage, we secure the following advantages. In the first place, the working force is more than duplicated in the united stock, because in it no more workers are required to remain at home, as nurses, &c., than in either before the union. And, in the second place, the production of useless brood is diminished fully fifty per-cent., one of the queens having been discarded. By an early reduction, therefore, we secure *increased production* and *diminished consumption.* Moreover, the united colony thus formed, will be made sufficiently populous by the maturing brood of the two stocks and that further produced by the selected and retained queen, and thus become better prepared in this respect for wintering, than if the union had been deferred to a later period. At the same time we secure a larger amount of surplus honey from the superseded hive than would be obtained from it after longer delay—the honey, moreover, being more liquid, is more easily managed. Loss of queen, too, during the operation, is more easily noticed now, than later, when there is little to gather abroad, because the bees are then more disposed to remain quiet; and our own tact for vigilant attention has greatly diminished, as we feel less interest in our bees when they are idle than when they are busy.

On the whole, then, those bee-keepers, who, by means of natural and artificial swarming, have obtained the number of colonies desired for their apiaries, and design henceforward to confine themselves to that number by reduction or union of stocks, should ponder well the period at which such reduction can be made in their respective districts, with most advantage to themselves. We often hear it said, indeed, "I have all along proceeded thus and so, and have always got on very well. Why should I change?" But the proper inquiry is whether a different or a modified process would not be more profitable? Practice in bee-culture, is nothing more than the application of our knowledge of bees in such manner as to render their labors profitable to ourselves. But the greatest profit will be reached, when, with the least possible outlay, we secure the highest attainable income. In making our calculations we must necessarily take into account, as principal items, the working time and the working capacity of the bees. Of this, it would seem, there could be no question; and we may therefore confidently adopt and repeat the counsel of the Baron of Berlepsch—" Study the theory, or you will remain practical bunglers all your days." KÖHLER.

[From the German.]

Quality and Properties of Honey.

The quality of honey depends much on the locality where it is produced and the plants from which it is gathered. That from warm, dry, hilly districts is finer than such as comes from colder and moist regions. The best is derived from the blossoms of the esparsette, the orange, and the fig, and from labiate plants in general, growing on elevated or mountainous ranges

Drawn fresh from the comb, honey is clear, translucent, slightly amber-colored, and viscous, becoming granular in time, with whitish transparent crystals. In taste and smell it is sweet, agreeable and aromatic. It should not irritate the throat when eaten, and its peculiar flavor should be so decided, that it can be readily detected when mixed with other articles of diet.

Honey derived from the blossoms of rape and other cruciferous plants, granulates or crystallizes speedily—often, indeed, while yet in the comb before removal from the hive; while that from labiate plants, and from fruit trees in general, maintains its original condition unchanged, for three or four months, after being drawn from the comb. Honey produced in northern countries likewise crystallizes sooner than that from southern countries.

In districts producing a great diversity of plants and flowers, those which decidedly predominate determine the quality of the honey there gathered. Natural meadows, and artificial pasture grounds sown with esparsette, lucerne, melilot, white clover, lupines, &c., generally yield a very pure, white, sweet, and aromatic honey. Esparsette and heather produce a reddish or slightly rose-colored honey, having a peculiar flavor. The blossoms of some trees give a spicy or acrid honey that irritates the throat in swallowing, but is not otherwise unpleasant. The honey of the linden-tree is mild, sweet, and very agreeable to most palates. Some plants and shrubs, such as the box-wood, the blue-bottle, &c., furnish a honey greenish, pungent, and unpleasant. The nature of the soil, climate, general temperature, and even the prevalent winds, have likewise considerable influence on the quality and quantity of the honey produced in any district. Thus, easterly and south-easterly winds rapidly dry up the honey in the nectaries of flowers; and long-continued drouth prevents the secretion of nectar.

The honey most esteemed in France, and most in demand in the markets of Paris, is that of Gatinais, derived from esparsette; that of Chamouni, in Savoy, produced by balm and the flowers of labiate plants; that of Narbonne, gathered from thyme, rosemary, sage, serpolit, and other labiate plants covering the hills of Corbières, in the neighborhood of Narbonne; alpine honey, derived chiefly also from the labiates; and the honey of Argences, obtained from esparsette. The honey of the Jura mountains, also, and of some portions of eastern and southern France, is highly esteemed, and is little, if at all inferior to any of those before enumerated.

The more celebrated foreign honeys in demand in France, are, that of Mount Hymettus, in Greece; that of Mahon, in the island of Minorca; that of Mauritius, in the Isle of France, Indian Ocean; that of Portugal, Chili, &c. Foreign honey of inferior quality is also imported from Cuba and St. Domingo. Little care seems to be exercised in selecting and preparing their honey for market; and as it is not unusually mixed with such as is produced in foulbroody hives, there is always great risk in using it for feeding bees when deficient in stores. It is seldom imported into France, except in years when there is a general scarcity of European honey.

Honey is much used by bakers and confectioners in the course of their business, and by the manufacturers of mead, honey-wine, honey-beer, honey-vinegar, &c. It is substituted for sugar by pastry cooks, and the makers of bon-bons, and comfits. The better qualities are kept for sale in the apothecaries. The inferior qualities are bought by the veterinary surgeons.

Honey is beneficial in pectoral diseases, acts as an excellent detergent, and as a gentle laxative. In ancient times the free and regular use of it as an article of diet, was regarded as a means of securing long life; and it thus came to be popularly considered as a specific against disease.

The chemical composition of honey is very complicated, and differs greatly in different samples. According to Dubrunfaut honey contains a small quantity of cane sugar, which becomes converted into grape sugar by the action of a ferment also contained in the honey. Mannite, a saccharine principle found in manna, celery, &c., has also been detected in honey, with two organic acids, some aromatic or ethereal oil, yellow coloring matter, a fatty substance, and nitrogen.

Honey contains more or less saccharine matter, according to the plants from which it is gathered, the climate where produced, and the temperature of the atmosphere. French honey usually contains from 80 to 88 per cent. of cane sugar, grape sugar, and mellose—consequently somewhat less than refined sugar.

MELICHER.

[From Beechey's "Voyage to the Pacific."]

Mexican Bees.

SOME ACCOUNT OF THE HABITS OF THE MEXICAN BEE, BY E. T. BENNET, ESQ.

In the hives of the domesticated bees of Mexico, we meet with a structure altogether peculiar. They exhibit little of the regularity which characterizes the bees of the old continent, and far inferior in this respect to the habitation of the wasps. In one particular they are approximate to the nests of the European humble bees; the honey which they contain is deposited in large bags distinct from the common cells. It is somewhat singular that so interesting a point of natural history has never been particularly noticed; our previous knowledge scarcely extending beyond the facts, that some of the bees of America form nests, like those of wasps, attached to or suspended from trees, and covered by an outer case constructed by themselves; while others, incapable apparently of forming this outer crust for their hives, seek cavities ready formed for their reception, and in them construct their habitations. Instances of each of these kind of hives are mentioned by Piso, in his Natural History of both the Indies; and Hernandez, in his History of Mexico, states that the Indians keep bees analogous to ours, which deposit their honey in the hollow of trees. Little information beyond that furnished by these older writers is contained in more modern books; and even the Baron Von Humboldt, to whose acute observation science is indebted for so many discoveries respecting the New World, appears not to have noticed, with his usual care, the peculiarities of its bees. Had that distinguished traveller directed his attention to the habits of the species which he collected during his memorable journey, M. Latreille would doubtless have given to us the necessary details in his excellent Monograph of the American Bees, included in the Observations Zoologiques of M. Humboldt. In the valuable essay prefixed to his Monograph, M. Latreille has collected from authors numerous statements relating to the habitations of bees, and especially of those of America; but has added to them no new facts as regards the hives of the New World; the subject may, therefore, be regarded as altogether novel, and as requiring some little detail in its explanation.

In the domestication of the bees of Mexico, but little violence is done to their natural habits. Inhabitants, in their wild state, of cavities in trees, a hollow tree is selected to form their hive. A portion of it, of between two and three feet in length, is cut off, and a hole is bored through the sides into the hollow, at about its middle. The ends of the hollow are then stopped up with clay, and the future hive is suspended on a tree; in a horizontal position, with the hole opening to the cavity, directed also horizontally. Of the hive, thus prepared, a swarm of bees speedily take possession, and commence their operations by forming cells for the reception of their larvæ, and sacs to contain their superabundant honey collected by them in their excursions. Two such hives completely formed and occupied were brought to England, safely packed in recent hides. One of these was forwarded to M Huber, eminently distinguished for his highly interesting observations on the manners of bees; the other was presented to the Linnæan Society. The latter was carefully divided longitudinally, so as to expose its interior.

The eye of an observer, accustomed to the regular disposition of the combs in the hive of the European bee, is at once struck with the opposite directions assumed by it in different parts of the Mexican. Instead of the parallel vertical layers of comb, we have here layers, some of which assume a vertical, while others are placed in a horizontal direction; the cells of the latter being the most numerous. The cells, of course, vary in their direction, in the same manner as the comb which they form; those of the horizontal layers of comb being vertical, with their openings upward, while the cells of the vertical comb are placed in a horizontal direction. In the horizontal cells the mouths are partly directed away from the entrance to the hive, and partly towards it; the former direction being given to those cells which occupy the middle layers of the comb, and the latter to the cells which are placed on the side of the hive opposed to the opening. All the combs, both vertical and horizontal, are composed of a single series of cells applied laterally to each other, and not, as in the European hive bee, of two series, the one applied against the extremities of the other The horizontal combs are much more regularly formed than the vertical, the latter being broken, and placed at uncertain distances; while the horizontal are perfectly parallel to each other, forming uniform layers, and placed at equal distances. Between these parallel combs are processes of wax, partly supporting them, and passing from the base of one cell to the junction of the others in the next layer. These columns are considerably stronger and thicker than the sides of the cells which they support.

The cells appear to be destined solely for the habitation of the young bees; for in all that have been examined bees have been found. The bee is placed in the cell with its hinder parts directed towards the mouth of the cell, which is covered by a granular mass, probably composed of the pollen of plants. The form of the cells is hexangular, but the angles are not sharply defined, and the mouth is scarcely, if at all, thicker than the sides. In their dimensions and relative proportions they differ materially from those of the European, and still more from those of the Indian bees, as may be seen from the subjoined table.

	Mexican.	European.	Indian.
Diameter of cells,	2⅔.	2⅔, 3⅓.	1½, 2⅔.
Depth of cells,	4.	5, 6.	4⅓, 6.

The combs are placed together at some distance from the opening of the hive, and form a group of an oval shape, consisting of five horizontal and parallel layers, occupying the part most remote from the opening; of an interrupted and vertical layer applied to the side opposed to the opening; and of two principal and two or three smaller vertical layers in the middle. The whole of these are supported by wax, spread out into layers or processes of the same material, resting either on the wood of the cavity, or on other parts of the fabric of the comb. In these processes and layers of wax are numerous openings of various sizes, at once admitting of ready access for the inhabitants to any part of the hive, and economizing the use of the material of which they are constructed. Some of the openings are of large dimensions. The entrance into the hive is continued into a long gallery, which, to judge by the direction taken by the flexible subtance introduced into it, leads beneath the combs to their very extremity. It is therefore probable that at the extremity the work of building is commenced.

Surrounding the combs are several layers of wax, as thin as paper, irregular in their form, and placed at some little distance from each other, the interstices varying from a quarter to half an inch. One of these supports a vertical comb; the others are connected to the combs only at their edges, or by processes or layers of wax. Externally to these are placed the sacs for containing honey which are generally large and rounded in form. They vary in size, some of them exceeding an inch-and-a-half in diameter. They are supported by processes of wax from the wood of the cavity, and from each other, and are frequently applied side by side, so as mutually to afford strength to each other, and to allow of one side serving equally for two sacs. This disposition is altogether irregular, and bears some resemblance to that of a bunch of grapes. Some of the honey-sacs are placed apart from the others, forming a distinct cluster of the same general appearance as those immediately adjoining the comb.

From this singular position of the honey-sacs a most important advantage is obtained by the cultivators of the Mexican hive bee. To possess themselves of its honey it is unnecessary to have recourse to the means adopted in Europe for stupefying, and even destroying the inhabitants of the hive. All that is necessary is to remove the plug from the end of the cavity employed as a hive, to introduce the hand, and withdraw the honey-sacs. The store of the laborious bee is thus transferred to the proprietor of the hive without injury, and almost without disturbing its inhabitants. The end of the hive is then again stopped up; and the bees hasten to lay up a fresh supply of honey in lieu of that of which they have been despoiled, again to be robbed of their precious deposit. A hive treated in this way affords during the summer, at least ten harvests.

The honey is usually pressed from the sacs by the hand. Its consistence is thin, but its flavor is good, although inferior to that of the whiter honey furnished by the Spanish bee (probably our common black bee, *Apis mellifica*, L.). It does not readily ferment, some of that contained in the hive being perfectly sweet amd grateful, even after its arrival in England.

The wax is coarse in quality, its color is dark yellowish brown. The whole of it appears to be similar in texture and properties, as well that used in the construction of the cells, as that which is applied to the coarser work of forming honey-sacs and supports; the only remarkable difference being, that in the former it is apparently paler, probably owing to the layers employed being considerably thinner and more delicate.

Of the varnish-like substance known by the name of propolis, and used by the European bees to cover the foreign substances with which they frequently come in contact, scarcely any vestige is exhibited, although we have evidence of its existence. The wood of the inside of the hive, except where wax is applied to it, is perfectly naked.

The hollow of the trunk forming the hive now before us is irregular in its outline, and varies in its breadth on different points. Its average diameter, however, is about five inches. The length occupied by the cells is more than seven inches; and the total length between the extremities of the honey-sacs is fifteen inches. The number of its inhabitants, assuming that of the cells as a guide, must have been considerably under a thousand; a number trifling in comparison with that contained in the hives of the European bee, which commonly amounts to as many as twenty-four thousand.

The bee by which this nest is constructed is smaller than the European hive bee; its abdomen, especially, being much shorter than that of our common species. Like all those Mexican bees which approach in their habits to our European race, it is readily distinguished from that, and from all other hive bees yet discovered in the Old World, by the form of the first joint of its hinder tarsi, which is that of a triangle, with the apex applied to the tibia. On account of this variation in the form of a part so important to the economy of bees, modern entomologists have universally agreed in the propriety of regarding the American races as constituting a distinct group from the bees of the Old World. M. Latreille has gone further by subdividing the American bees into two genera; *Melipona*, in which the mandibles are not toothed; and *Trigona*, in which these organs are dentate. Of the propriety of this subdivision, which hitherto seemed to be supported by the general appearance of the insects referred to each group, the examination of those whose nest has just been described has given rise to considerable doubts. In it one of the mandibles is toothed, and the other is nearly entire. Its technical characters, therefore, are intermediate between the two genera, with a leaning towards *Trigona*; but its general appearance is entirely that of a *Melipona;* approaching very closely to that of a *Melipona favosa*, Latr., *Apis favosa*. Fab. That it cannot be that species, or any of the nearly related ones described by M. Latreille in the Observations Zoologiques, is evident from the dentation of its mandible, and it may, therefore, be regarded as new to science.

Some curious stories are related by the possessors as to the manners of these bees, one of which deserves to be recorded. They assert that at the entrance of each hive a sentinel is placed to watch the outgoings and incomings of his fellows; and that the sentinel is relieved at the expiration of twenty-four hours, when another assumes his post and duties for the same period. On the duration of this guard some doubts may reasonably be entertained, but of its existence ample evidence was obtained by repeated observation. At all times a single bee was seen occupying the hole leading to the nest, who, on the approach of another, withdrew himself within a small cavity, apparently made for the purpose on the left-hand side of the aperture, and thus allowed the passage of the individual entering or quitting the hive; the sentinel constantly resuming his station immediately after the passage had been effected. That it was the same bee which had withdrawn that again took his station in the opening, could not be mistaken; for his withdrawal was only into the cavity on the side of the hole, in which his head was generally in view during the brief interval while the other was passing; and that head again immediately started forward into the passage. During how long a time the same individual remained on duty could not be ascertained; for though many attempts were made to mark him, by introducing a pencil tipped with paint, he constantly eluded the aim taken at him, and it was therefore impossible to determine with certainty whether the current reports concerning him were or were not founded in fact. With the paint thus attempted to be applied to the bee, the margin of the opening was soiled; and the sentinel, as soon as he was free from the annoyance he suffered from the thrusts repeatedly made at his body, approached the foreign substance to taste it, and evidently disliking the material, he withdrew into his hive. The hole was watched to see what would be the result of the investigation of the substance, and a troop of bees was soon observed to advance towards the place, each individual bearing a small particle of wax or of propolis in his mandibles, which he deposited in his turn upon the soiled part of the wood. The little laborers then returned to the hive, and repeated the operation until a small pile rose above the blemished part, and completely relieved the inhabitants from its annoyance.

If the existence of such a sentinel as has just been described can safely be admitted, his utility would be unquestionable, as being at all times prepared to encounter a straggling stranger, or to give warning of the approach of a more numerous body of foes. Such foes actually exist in moderately sized black ants, which sometimes in small, and occasionally in large bands, attack the hive, and between which and the industrious bees desperate conflicts often take place. In these struggles the bees generally obtain the victory; but they are occasionally mastered by the overpowering numbers of their opponents.

☞ Send us the names of bee-keepers, with their Post Office address.

[From Low's "Elements of Agriculture."]

Esparsette, or Sainfoin.

Esparsette, as it is called in Spain, Sainfoin, as it is named in France, the *onobrychis sativa* of the botanist, has a perennial root, and is extensively cultivated for green food in the chalk and sandy districts of England and France. Although this species has an extensive range of the lighter class of soils, it is yet in a peculiar degree adapted to the calcareous; hence it is found growing naturally in many open downs and hilly pastures where the chalk formation exists.

Sainfoin is a deep-rooted plant, with a branching stem, bearing spikes of beautiful flowers. It grows wonderfully on rocky soils, stretching its roots to a prodigious depth amongst the crevices of rocks and open strata. It is, in truth, on dry rocky soils that the chief advantages of the cultivation of sainfoin are seen. On a chalky rock, covered with only a few inches of soil, it will thrive and grow for many years with vigor, where neither grain nor cultivated herbage plants would cover the surface. Like lucerne, although in a lesser degree, it is choked and ultimately exterminated by the prevalence of the grasses; but in a soil perfectly suited to it, as in a chalky loam, it will have a duration perhaps as long as any other plant. Although best adapted to the calcareous soils, it will grow upon any light soil which has a free or open subsoil; but on moist clays it will only last a few years, sometimes not above two.

Sainfoin may be sown with a crop in the same manner as the clovers and the grasses. In the following season it may be mown for hay or green forage, although it does not attain its full maturity until the third year. When this mode of management is adopted, the sainfoin should be mixed with one or more of the clovers, which will add to the weight of the produce, without materially interfering with the growth of the sainfoin.

When greater care is thought necessary, sainfoin, like lucerne, may be cultivated in rows, being regularly tilled and horsehoed during the summer, and manured at intervals, as every fourth or fifth year; but for the most part, it is not thought necessary to resort to this method of tillage, and the easier and more convenient practice of broadcast is preferred.

The seeds of the sainfoin are larger than those of the clovers; and when sown with the cereal grasses in spring, a little more care is necessary in covering them with the harrow and roller. The seeds should be of a good and tried kind, and perfectly fresh, for old seeds do not vegetate in a proper manner. The quantity, when sown broadcast, may be four bushels to the acre; when sown in rows, from two to three bushels. The best period of sowing is in the month of March, or early in April.

Sainfoin does not bear such frequent cutting as lucerne. When used for soiling, it may be cut twice; when used for hay, it should be cut once and the aftermath depastured. Sainfoin may be used for herbage as well as forage, and many farmers prefer depasturing it in the first year, so that in the second it may have attained its full growth before it is mown; and this is a good practice.

Sainfoin, when it is made into hay, should, like other leguminous forage plants, be cut just when it comes into full flower. It is not very apt to be injured by heating, and therefore may be put by more quickly than other hay plants. The produce in hay is generally reckoned from one to two tons to the acre, in districts where it is cultivated; and, considering that it is grown on inferior soils, and that it yields good aftermath, it will be seen to be a productive plant.

If ground is to be mown for successive years for forage, then, on such soils as are suited to it, scarce a better crop can be cultivated than sainfoin, which is easily grown, hardy, and productive. But, with regard to this particular mode of cultivation, it cannot be at all commended. It is not the most beneficial mode of raising crops of forage; for, independently of the smaller produce, the keeping of land under any one kind of crop, and manuring it upon the surface, is to deprive the cultivated land of manure for an object which may be better attained by other means.

Sainfoin, when sown merely to produce one crop of hay, and then to be depastured for such a period as may be thought suited to the nature of the soil, answers well; but in this case, it is recommended that it be sown with a proportion of white clover and rye-grass. It is then merely a substitute for the red clover, and it is a good substitute, for it is a perennial, and will grow on soils on which the red clover cannot be profitably cultivated. It is in this way only, it is conceived, that the cultivation of sainfoin should be much extended. It may be used as a substitute for red clover in many of the sandy, dry, and rocky soils, which are intended to remain for several years in herbage.

[For the American Bee Journal.]

How I became an Apiculturist, No. 4.

The people of Wenham would not find, even in the old city of Langres, (France), a legal precedent for bee-banishment; for the policemen had transcended their powers, and when one of them, who was a near relative of my neighbor, came again to expel my bees, I being now better informed as to my rights, refused to obey, and on presenting my complaint to the Mayor, the officious official received a sharp reprimand.

On hearing of my annoyances, my grandfather proposed to wall in his orchard. He was for some years out of business, and was pleased with the thought of occupying himself with improving that ground, where he had already planted many trees. My delight was not less than his, for in my boyhood that locality had always been the scene of my rambles. The next and subsequent days we were both at work, and with the aid of the toiling laborers of my grandfather, the object was speedily accomplished. The required stones were close at hand, and as the northern and western sides were bounded with high rocks and thorny bushes, and the southern side by an old hedge, there was really only one side of the orchard to be secured by a wall.

But, while we were thus engaged, carrying the stones in a wheelbarrow, and piling them one upon another to make a good dry wall, the keeper of the ramparts came and ordered us to desist, declaring that we were within fortification limits, and no stone could be removed without leave from the officer in command. We feigned compliance, but resumed our work more vigorously when he left, for my grandfather said we might wait for months for permission to proceed, and not be sure of obtaining it in the end; but if once done they would not order the work to be demolished. My grandfather's scheme, however, included the erection of a small cottage, and when that was undertaken, the keeper of the ramparts made his appearance once more, ordering us to desist. As the commandant could not but see our new building, we had now no alternative but to apply for permission to proceed with our work. After many delays, and executing divers obligations, we were allowed to build a plank cottage eight feet square, placed on two wooden axletrees and four wheels, so that the structure might quickly be removed out of harm's way, in case of the invasion of the country by an enemy. Yet the city of Langres is hundreds of miles within the frontiers of France!

Let us now return to my bees, wintering on the roof of the house. After a stormy night in February, while the water of the melted snow was overflowing the streets, I found one of the straw coverings of my hives thrown down into the yard. On ascending to the roof, I found that the two outer boxes had been removed, and two streams of yellow water were running from the exposed frames. My spiteful neighbor had risked his neck, in order to glut his vengeance.

I confess I was at first quite disheartened. Yet, hoping that my bees were still alive, I resolved to carry them to my gandfather's. I there set them in front of a large chimney, where my grandmother lighted a fire, and I watched for hours to observe their first humming. At last I fancied I heard a slight buzzing; but the rapid beating of my heart did not permit me to hear more. Finally, a single bee came, with vibrating wings, to the edge of one of the frames, and I concluded that that swarm was alive and might yet be saved. I hastened to nail same light millinet on two bottom-and top-less boxes, in which to put my hives to prevent the bees from flying away, and then watched their demeanor. Soon many bees made their appearance outside of the frames, all vibrating their wings, till nearly the whole swarm was thus occupied. In the course of the following two days, by means of the vibrations and the warmth of the fire, the bees were as dry as ever. Very few bees, compared with what I had anicipated, were dead, and no queens were found among these. Often, in spring, the bees vibrate their wings in order to dry their wet and mouldy combs; and you should never remove such combs from your hives, unless quite rotten, for the bees can cleanse them as soon as needed.

The hives were then transferred to the orchard, and gave me three swarms that spring, which were hived by my grandfather, who was daily engaged in improving his orchard—especially the rocky and bushy spot. One after another the unsightly bushes were removed and replaced by blooming shrubs; the sweet briers became rose bushes, and the plain old hawthorn was converted into something more attractive and imposing.

One day, that same year, I presented a nice comb of honey to a lady who was preparing festivities to celebrate the approaching birthday of her husband, and had already provided many dainties for the occasion. My honey was deposited in a closet, with other sweetmeats. This was in July just after the linden trees had blossomed, and when pasturage had become scarce from the absence of flowers Some hours after my return, the lady sent for me in haste, as the bees had made an invasion of her closet, and she was in great dread of them. "Seeing some bees in the closet," she said, "I opened the window to let them return to their hives. I thus left them, and forgot them, till passing near the closet again I was attracted by the noise within, caused by a countless multitude." Not only was the honey gone, but all the sweetmeats had been attacked and carried off. Of course, I had to replace my honey comb, and the confectioners were called on to furnish a fresh supply of tempting delicacies.

Dissatisfied with the Huber frame hive, I resolved to try the Ravenel improved straw hive. That hive was composed of ekes, triangular bars, and a convex top. But my bees not only constructed their comb crosswise, but cemented all the ekes together. In the ensuing year, I introduced spaces between the ekes, according to Ch. Soria's book; but this only prepared convenient quarters for mothworms. I afterwards constructed two Nutt hives, in order to get as much honey as possible from my bees. One swarm gave me more than a hundred pounds of nice honey; while the other absolutely refused to work in the collateral boxes, and swarmed three times, though the hive was a so-called non-swarmer. I then made the observatory hive of De Flurieu, &c., &c.; and tried all the known improvements, more or less sur-improved by myself; but these improvements generally resulted in evils as great, if not greater, than those they were intended to remedy. My apiary, stored with all kinds and systems of hives I had heard of, advanced but so so, till, at the Paris Exposition of 1844, I encountered Mr. Debeauvoys, with his frame hive; and I resolved to transfer all my bees into that kind of hive exclusively.

Ch. Dadant.

Hamilton, Ill.

A swarm of bees gathered on a lamp-post on Broad street, Boston, recently, and was captured by the merchant to whose door they came.

[For the American Bee Journal.]

Letter from Maine.

CURE FOR ROBBING!

Dear Journal:—I can hardly see how a young apiarian can prosecute the art of "beekeeping" intelligently, without the aid of your valuable Journal. He certainly must possess more brains than the undersigned, or his success must be materially curtailed. I could not afford to do without the Journal, even if its price were three times greater than it is. The subject matter is so varied in its character—much of it emanating from practical apiarians, who there record the "*process*" and *result* of their experimenting—that "*beginners*," by carefully observing the hints and suggestions given, can *at once* enter upon a series of experiments which will add much to the value of the apiary and afford them great pleasure and instruction. There is another class of correspondents, who delight to call themselves "novices" ("of whom I am which," as Nasby says), and tell what they have accomplished in their various manipulations of the hive, and their methods of procedure. In the latter class, Mr. Editor, I am deeply interested, because, from their experiments I got much that is of practical value to a beginner. Taking many of their ideas from the veterans in bee-culture, to whom we all look so confidently for counsel, carrying them out practically, and then giving your readers the *result*—whether it be *failure* or *success*. This enables me to adopt the method that proved successful, and to reject the other.

Standard works upon the "Bee and Bee Hive" are valuable; yet he would be a rare genius who could combine in such a work, the way to manage in *all* emergencies that are so continually arising. *This*, the Journal nearly accomplishes, because of the large number who contribute to its columns. I would advise all bee-keepers, whether they possess one or more stocks, to subscribe for the American Bee Journal, and they will surely find in each number some suggestion that will be worth to them more than the subscription price for a year.

Now a bit of my own experience. May 19, Mr. Emerson, of Charleston, (Me.) transferred for me a small swarm of bees, from the Torrey hive to the American. But on carrying the hive to the stand, I found the roof of the house too low to admit it, and I placed it in another part of the house. The natural result of this sudden "change of base" was the loss of many bees that flew back to the old stand and perished. I soon became convinced that the queen was destroyed during the process of transferring; but knowing that the combs contained young larvæ, I felt sure that a queen would soon be reared; which proved to be the case.

June 4th, I found the hive full of robbers, that had completely conquered my little colony. Watching them carefully, I managed to entrap some two or three quarts of them. After treating them to a good *smoking*, I kept them snug and safe for four days, when I fed them by placing in the hive a piece of comb filled with sugar syrup and water; upon which they soon worked quite freely. At sunset on the fifth day of their imprisonment, I smoked them again and let a few fly out. They returned promptly to the hive. Next morning, I let out about a dozen bees. These flew about for several minutes, apparantly acquainting themselves with the "new order of things" about their adopted home, and then off to the blossoms. From these, in due time, they all returned with stores for the young. I then removed the slide, and gave all of them the "freedom of the town," which they industriously improved. The result is an excellent swarm of bees, with a young queen safely fertilized; and all now working finely.

Mr. Editor, here, away down east, on the south of the charming Penobscot, scientific bee-keeping is yet in its infancy. Still, it is beginning to receive more attention, and we hope soon to see the branch of apiculture prosecuted with the same intelligence and enterprise that is given to agricultural pursuits.

GEORGE S. SILSBY.

WINTERSPORT, ME.

Bees and the Echo.

One should have imagined that echoes, if not entertaining, must at least be harmless and inoffensive; yet Virgil advances a strange notion, that they are injurious to bees. After enumerating some probable and reasonable annoyances, such as prudent owners would wish far removed from their bee-gardens, he adds:

> "Aut ubi concava pulsa,
> Saxa sonant, vocique offensa resultat imago."

This wild and fanciful assertion will hardly be admitted by the philosophers of these days, especially as they are all now agreed that insects are not furnished with any organs of hearing at all. But, if it should be urged that, though they cannot hear, yet perhaps they may feel the repercussion of sounds, I grant it is possible they may. Yet that these impressions are distasteful or hurtful I deny, because bees, in good summers, thrive well in my outlet, where the echoes are very strong, for this village is another Anathoth, a place of responses or echoes. Besides, it does not appear from experiment that bees are in any way capable of being affected by sounds; for I have often tried my own with a large speaking trumpet held close to their hives, and with such an exertion of voice as would have hailed a ship at the distance of a mile, and still these insects pursued their various employments undisturbed, and without showing the least sensibility or resentment. —*Whtie's Selborne.*

* * *

Ten millions of pounds of starch sugar syrup are annually manufactured in Switzerland, and twelve millions of pounds in France. This syrup is principally used in the breweries of the former country, and in the distilleries of the latter. Under the name of glucose it is also used in both countries by the confectioners, and as a bee-feed by bee-keepers.

[For the American Bee Journal.]

Bees often fasten frames, honey-boards, and boxes so firmly that it is difficult to remove them. By greasing with tallow the parts likely to be so fastened, they will separate readily, and the gum is easily removed. It is best to do it when the wood has not already been coated with propolis, but while still new and clean. It does not appear to annoy the bees, and they put on the usual amount of gum, but it is easily removed.

CHARLES CARPENTER.

KELLEY'S ISLAND, OHIO.

Bleaching Wax.

Wax is freed from its impurities, and bleached, by melting it with hot water or steam, in a tinned, copper, or wooden vessel, letting it settle, running off the supernatant oily-looking liquid into an oblong trough with a line of holes in its bottom, so as to distribute it upon horizontal wooden cylinders, made to revolve half immersed in cold water, and then exposing the thin ribands or films thus obtained to the bleaching action of light, air, and moisture. For this purpose, the ribbands are laid upon long webs of canvas stretched horizontally between standards, two feet above the surface of a sheltered field, having a free exposure to the sunbeams. Here they are frequently turned over, then covered by nets to prevent their being blown away by winds, and watered from time to time, like linen upon the grass field in the old method of bleaching. Whenever the color of the wax seems stationary, it is collected, remelted, and thrown again into ribands upon the wet cylinder, in order to expose new surfaces to the blanching operation. By several repetions of these processes, if the weather proves favorable, the wax eventually loses its yellow tint entirely, and becomes fit for forming white candles. If it be finished under rain, it will become grey on keeping, and also lose in weight.

In France, where the purification of wax is a considerable object of manufacture, about four ounces of cream of tartar, or alum, are added to the water in the first melting copper, and the solution is incorporated with the wax by diligent manipulation. The whole is left at rest for sometime, and then the supernatant wax is run off into a settling cistern, whence it is discharged by a stopcock or tap, over the wooden cylinder revolving at the surface of a large water-cistern., kept cool by passing a stream continually through it.

The bleached wax is finally melted, strained through silk sieves, and then run into circular cavities in a moistened table, to be cast or moulded into thin disc pieces, weighing from two to three ounces each, and three or four inches in diameter.

Neither chlorine, nor even the chlorides of lime and alkalies, can be employed with any advantage to bleach wax, because they render it brittle, and impair its burning quality.

Wax purified as above, is white and translucent in thin segments, and has neither taste nor smell.—URE.

[From the (London) Gardener's Chronicle.]

Fecundity of the Queen Bee.

In a paper read by Mr. Desborough before the "Entomological Society," on the 4th of May, he makes the following extraordinary statement. To quote from the published report of the meeting:—"The author had succeeded in ascertaining that, in certain cases, the queen bee will survive and deposit eggs during not fewer than six seasons, whereas the worker bees only live about eight months. A single queen had produced as many as 108,000 eggs, which would be about 20,000 a year. But the greatest amount of eggs was deposited during the first two years of her life; only about 15,000 being laid during each of the last three years."

With regard to the longevity of the queen bee, I have little to say, except that I do believe, as a rule, her existence extends to more than four years. In all my experience I have never known the life of any to exceed that period of time. The workers may and do live about eight months, during the autumn, winter and spring; but on an average, during the summer their lives do not exceed three or four months.

But it is with respect to Mr. Desborough's statement as to the fecundity of the queen, that I must take entire exception. A healthy vigorous queen, at the head of a strong and prosuperos colony, in a well proportioned hive, instead of laying only 108,000 eggs in the course of her life of—according to the author—six years, will lay nearer 100,000 eggs in one season.

I have myself had hives in which I have been quite certain that the queen laid at least 70,000 eggs in a single year; and I have had and heard of other hives in which I have no doubt that the numbers far exceeded that amount. I have also had occasion to notice that the fertility of a queen is most abundant in the third season of her life—a great change for the worse taking place in her fourth or last year.

It appears to me most probable that Mr. Desborough drew his inferences from observations of a colony domiciled in a glass observing hive. It must be obvious to every one that bees, under such circumstances, must be laboring under very great disadvantages. Their energies are cramped in every way; and the breeding powers of the queen, as well as the working powers of ordinary bees, cannot have full scope for their developement. S. Bevan Fox.

☞There two cases on record where the queen bees attain the age of five years—one observed by Mr. Dzierzon, and the other by the Baron of Berlepsch; though it is believed that, on an average, they rarely survive their third summer.

There is a marked difference in the productiveness of queens, even under similar circumstances of condition and age; but most of them are much more prolific than Mr. Desborough infers from his observations.

———" The Bee,
Whose busy labors wound the ear of Noon,
Finds in the winter, from his garnered store,
Quick spoliation and a bitter death."

[For the American Bee Journal.]

Bee Feeding.

Mr. John M. Price, Buffalo Grove, Iowa, writes me a description of a bee-feeder, and wants I should test it, and report through the Bee Journal. He says:—"I have mine made of a Lyman self-sealing pint glass fruit jar. Punch a few holes in the lid, and solder on a piece of the finest wove wire, such as is used in milk strainers. Then solder a piece or strip of tin around the edge of the head lid, $\frac{3}{8}$ or $\frac{1}{2}$ inch wide, so as to keep the jar or can from touching the honey-board. Fill with honey or sugar syrup, and put on the lid; now turn quickly over, and, there being no vent, the honey or syrup will not run out, only as fast as the bees suck it through the wove wire. Place it over a hole above the cluster of bees in winter."

Thank you, Mr. Price. No doubt it is a good thing; but I do not use a feeder, neither do I feed bees, except in the spring, to promote breeding, or in summer, and then in small quantities only. Now, for my method. Make your swarms early, and strengthen them up and equalize them with brood from your strongest stocks. In the breeding season, and while they are gathering honey, feed in small quantities when there is a temporary cessation of pasturage, to keep up the fertility of the queen; for recollect that the queen stops breeding if there should be two days together that the bees gather nothing, especially in a young swarm that is building comb. Should you make swarms late, do so by taking a single frame from a hive containing brood and honey, and make up a full swarm at once. This I frequently do late in the season to use up my spare queens.

By this method you will have no weak stocks in the fall. Every stock will be a No. 1, if properly managed.

In summer feeding, it is just as easy feeding a swarm of bees, as it is to feed a brood of chickens. My honey-board is in three pieces. I remove the piece where I wish to feed the bees, and sprinkle the feed in among them, or sometimes put it on a plate in the vacant side of the hive, just at night, to prevent robbing. How many will try this method, and report through the Bee Journal? Suppose you use a common box hive, your swarm can be strengthened up in summer, by drumming out young bees from a strong stock and giving them to the weak.

Mr. Price also sends a description of a novel kind of hive of his invention, and as he is sensible enough not to have it patented, we will suppose it is an excellent hive. There is no use in inflicting another patent hive on the public for the next thousand years. All use what is called the Langstroth principle, only the form is varied. When they depart from that principle, they make a move in the wrong direction.

Elisha Gallup.

Osage, Iowa.

☞ Send us the names of bee-keepers, with their Post Office address.

Pure Fertilization.

Since our last issue full accounts of the process employed by Mr. Köhler and others, to insure the pure fertilization of Italian queen bees, having reached us in the *Bienenzeitung* and other foreign periodicals, we take the earliest opportunity to place them before our readers. We trust that some of our correspondents are in a position to test the matter promptly, and having done so, will communicate the result to the Bee Journal, for the benefit of its readers. We begin with

The Köhler Process,

described in a letter from Mr. Köhler himself, as follows:

"Now, as to the process itself. It grew out of an observation I made that, on many fine forenoons and afternoons, the air is still sufficiently warm to permit the queens to fly at times when drones have not yet issued from their hives, or after they have ceased to fly. Hence we must devise a mode of inducing Italian queens and drones to issue at times when common drones are not or are no longer flying, until the young queens reared and matured have become fertilized. The period during which drones usually fly rarely extends beyond four or five o'clock in the afternoon. Hence if we have one or more colonies containing young queens which we certainly know have not yet been fertilized, we place these during three, four or five days in a quite dark and right cool cellar, and with them also a hive containing a large number of Italian drones. Then, when a fine, clear, warm day occurs, we watch our stocks or colonies of common bees, to ascertain when their drones have ceased to fly, and as soon as practicable thereafter, the Italian colonies are to be brought out of the cellar and replaced on their stands, giving each of them a teacupful of diluted honey. The queens and drones, wearied of long confinement, and the bees excited by food and eager for release, will now rush forth precipitately, and pure fertilization of the queens is sure to be effected. We should, however, be careful to return to the cellar, every colony the queen of which has not been seen to return with the evidence of fertilization; and this must be done on every occasion, until it is certain that the object has been accomplished. This is necessary, because it is well known that some queens make repeated excursions before they succeed in encountering drones; and this is the more likely to happen when the excursions are made at a time when the number of drones abroad is restricted to those of the Italian race alone, contained in only one or two hives.

You will be satisfied, even before making the experiment, of the efficiency of this process; still "*there's nothing like trying*," and you will of course do that, to add conviction to belief.

But I will now communicate some additional information, which I feel sure will be gratifying to you. I do not know whether you prefer natural to artificial swarming. In my practice I combine both, because I can thereby, with the least possible trouble, manage to Italianize a dozen colonies by means of a single one. My process is as follows: Remove the stock from which a swarm has just issued, and set it in the place of another right populous colony. In nine days it will swarm again, by means of the bees received from the colony removed. We now remove it again to the stand of another populous stock, and it will swarm again on the second or third day. Continue this removal immediately after swarming, so long as teeting and quawking continue to be heard in the colony at nightfall. Under favorable circumstances, ten or twelve swarms may thus be obtained, as the first swarming stock furnishes the queens and the others supply the bees. Hence if you have one or two Italian stocks and feed them carefully early in the spring, beginning about the 20th of March, if the hives are well supplied with pollen, or can gather it plentifully, we may feel assured that those Italians will swarm first; and if then transposed as directed with common stocks, all the subsequent swarms obtained will have Italian queens though the bees be of the common kind.

The advantages secured by this process are very great. In the first place we obtain prime swarms with Italian queens, and these queens are almost invariably larger and finer than those which bees produce *under compulsion*. Again, we are enabled to Italianize a colony with all ease—nothing more being required than the removal and transfer of two stocks to new locations, and the work is done. I am enabled, also, to place the swarms anywhere in my apiary or, elsewhere; and thus escape the bother and perplexity ofttimes occasioned by artificial colonies, which cannot be conveniently or safely placed where we would prefer to have them. Furthermore, we know precisely when to look for a swarm after the first has issued; for the second will come on the ninth day after the hive has been transferred to the stand of a strong stock; the third on the third day after the second transfer; the fourth on the following day, and so on. If queens are heard teeting and quawking in the hive, at eve after removal, it may be carried into a dark cool cellar, and we may have it swarm next day at such hour as suits us. Feed it moderately, and a swarm will issue immediately after it is replaced in its stand and feels the influence of light and heat.

I would add one remark. The process for ensuring pure fertilization is reliable only when employed at the beginning of the season, while pasturage is abundant, and before any of the common stocks begin to expel their drones. It frequently occurs that particular colonies having raised young queens, begin to expel their drones as soon as those queens have been fertilized and begin to lay. I observed this in several instances last season. In such cases the drones no longer maintain regular periodicity in their daily flights, but some are occasionally seen on the wing from early in the morning to late in the evening. It is hence advisable to engage in rearing queens early in the season and to hasten that by judicious though moderate feeding.

Trusting that you may be able to make your experiments this year yet, and that no unexpected mishap may thwart your expectations, I am yours, KÖHLER."

JULY 18, 1867.

THE KRUGER METHOD.

Mr. Krüger places the colony containing the young queen, but which must contain no drones, at evening or early in the morning in a dark and cool cellar; and places there also the colony containing the pure drones of whatever race he desires to propagate. In the afternoon of the following day, if fair, or of the first subsequent fair day, after the drones of the other colonies in his apiary or vicinage have ceased to fly, he again removes those hives from the cellar, and replaces them respectively on their former stand; feeds the bees with luke warm diluted honey, and allows them to fly. The Baron of Berlepsch assured Lieutenant Wedell that the Krüger and Köhler methods are identical.

THE GÖHDE METHOD.

On the 19th of April last, at a meeting of the Lausche Apiarian Society, Mr. Göhde, of Wittgendorf, submitted the results of experiments repeated several years, to secure the fertilization of queen bees by drones selected by the bee-keeper. "I take," said he, "a nucleus hive, and place in it a comb with honey, and another with brood, on which latter there is or has been inserted a queen cell containing an embryo queen nearly matured. I introduce in this nucleus a sufficient force of *young* bees, (choosing such to guard against desertion), and likewise from twenty to fifty drones of the variety designed to propagate from, give them an adequate supply of water; close the entrance, and place the nucleus in a cool and dark locality eight or ten days. Then on the afternoon of some suitable day, after drones have ceased to fly, say at about six o'clock P. M., bring the nucleus out, set it on the stand and open the entrance. The bees, drones, and queen will speedily issue, and in most cases the latter will be seen returning with marks of fertilization. But if this fact is not observed, the nucleus is returned to its former locality when the bees have become settled, and the entrance has been closed. It should be brought out again the next evening, or as frequently as necessary, till evidence has been obtained that fertilization is effected."

Mr. Göhde assured the Society that by this method, he had invariably secured fertilization by the selected drones, though his apiary still contained colonies of black bees, as well as of hybrids and Italians. He desires other bee-keepers to try it, and report the result.

THE FUTTER METHOD.

Mr. Fütter, principal of an academy at Stein, in the Grand Duchy of Baden, has communicated to Mr. Dathe, of Eystrup, Secretary of the Central Apiarian Society of the province of Hanover, his method of controlling fertilization, not, as he says, "with a view of securing pecuniary remuneration or to interfere to the disadvantage of Mr. Köhler, but to secure evidence of his claim to a simultaneous or prior discovery of so valuable a process." Mr. Dathe does not publish the method, as the knowledge of it was communicated to him under an injunction of secrecy; but contents himself with stating that it is *substantially* the same as that of Mr. Köhler.

DATHE'S METHOD.

When communicating the above to the *Bienenzietung*, Mr. Dathe takes the opportuiny to remark that the alleged Köhler discovery is in reality, *no new discovery* at all. That he himself made and published it a year ago, in his pamphlet "*Guide to Italianizing*," page 65. Consequently that which was published twelve months ago, cannot be a *new discovery* this year. We have a copy of Mr. Dathe's pamphlet, and on turning to it find the following passage on page 65:

"To secure fertilization after the drones have ceased to fly; we shut up in the morning the hive containing the queen and drones we design to propagate from, giving them sufficient ventilation, and placing them thus closed till evening in some dark cool place. It is unnecessary to cover the hives with an envelope to enable the bees to course over them on opening the entrance. When the drones of the other colonies in the apiary have ceased to fly, those hives are replaced on their stands, and the bees are impelled to issue and take wing, by feeding or sprinkling them with honey."

This is virtually the same method.

Having thus furnished our readers with an account of the German methods, we proceed to present to them, from the (London) *Gardener's Chronicle*, a statement of a

SCOTCH METHOD TO BREED PURE QUEENS.

Last week I alluded to the fact of the publication of a discovery very analogous to that of Mr. Köhler, by a Scotch apiarian. I have now the pleasure of supplying your readers with the details of the discovery.

The following letter appeared in the pages of a contemporary:—"As many of the readers of our journal may not be in a position to purchase the discovery of Mr. Köhler, I think they might in the meantime try the plan of an apiarian friend of mine for preventing his Ligurians from crossing.

It is this. As soon as a young queen is hatched out in a nucleus box, a number of pure Ligurian drones are selected for her companions, and confined along with her for two or three days. Then, on the afternoon of a fine day, when all other drones in the apiary have gone to rest, and the queen is judged ready to take her wedding flight, the hive is opened. As might be expected, the queen and her companions immediately avail themselves of their liberty, and a pure breed is secure.

"Should the first tour not prove successful, the hive is again shut up, and not opened until the following afternoon." M. J.—Lockerslie.

The foregoing plan is so nearly allied to that of Mr. Köhler that I, in common with Mr. Woodbury, deemed it desirable to decline receiving any more names of subscribers at 10s. 6d. each, for the secret of the German discoverer, though at the same time feeling very sorry that he should so soon have lost the chance of receiving a little pecuniary benefit for his plan.

I have no doubt that the course of proceeding recommended by M. J.'s Scotch friend, will be found fully to answer the purpose intended It is strange that, while feeding the young swarm and the stocks containing pure Ligurian drones, for the purpose of inducing the young queen and the pure drones to fly out earlier in the day than the drones of the generality of hives would ordinarily do, has been more than once recommended, the apparently equally simple mode of inducing them to go abroad after the usual time of flight, should have been completely overlooked.

In addition to the directions given by M. J., I would suggest that the bees confined in the nucleus, should be supplied with a little artificial food, just prior to their being allowed their liberty. I think this would stimulate both the queen and drones to take flight. I shall hope to hear of favorable results from any of our artificial queen-raising friends who may be disposed to try this experiment.

S. Bevan Fox.

[For the American Bee Journal.]

Is Puff-Ball Smoke Injurious?

One question I would like to ask: Does it hurt bees to smoke them with puff-ball? One of my neighbors keeps bees, and sometimes smokes them with puff-ball, and I have noticed that his bees do not swarm as well as others in the neighborhood. I do not know whether it is that, or because his hives are rather small, not measuring more than 1,800 cubic inches.

Rufus Stickney.

East Templeton, Mass.

☞The use of puff-ball in fumigating bees, has been objected to, when the hives contain brood, on account of its tendency to destroy the uncapped larvæ. We never used it ourselves and cannot speak from experience, but if such be its effect, hives so treated in the spring would be very likely "not to swarm as well as others." Small sized hives would rather promote than prevent or retard swarming.

Monmouth, Ill., June 17.

Till the 10th of June, bees here did not gather honey enough for their daily need. Since that time, with the exception of three days, they have done well. They are now just beginning to swarm.

All the bees in this county are black, except eight stands, which are Italians.

T. G. McGraw.

☞ Send us the names of bee-keepers, with their Post Office address.

[From the Canada Farmer.]

Alsike Clover.

The following is an extract from a farm journal:—"May 23, 1868. Made the weekly inspection of the farm. Went first to the Colt ground, where the span of colts, now three years old, are growing into the future team. This place consists of four acres, fenced in with black ash pole, or log fence, so high that they cannot jump over, and so strong that they cannot break through. This is the true way to prevent colts from being breachy. The pasture is very rich, and is more than will be necessary to support the colts during the season.

"I noticed the Alsike clover particularly, which is now about five inches high. It possesses one unusual peculiarity, viz: that of doing best in the holes covered with water during the winter and spring. No doubt this is a valuable property as compared with red clover, which will not stand such hardship. Another thing to recommend its use is, that, before timothy or red clover is ripe enough to cut for hay, the top-flowers of the Alsike are ripe and shed their seed, which seems to catch at once and grow, as I find vast numbers of young plants, only two inches high, the results of last year's haying. Our colt pasture is an uneven piece of land, and the roots and stumps are not out sufficiently to enable us to level it yet."

This property of withstanding water in the winter and spring renders it a very useful plans for undrained farms, and reminds us of the native place of the Alsike clover, which was first discovered in the ditches of the fortifications of "Alsike," in Sweden.

[For the American Bee Journal.]

Revived Bee-Culture.

Mr. Editor:—I have always felt a lively interest in the bee question, that is, since I was old enough, though that is not yet a great many years. My father kept bees, in an old fashioned hive, for quite a number of years, or till they run out. He came to the conclusion that it was the mothworm that destroyed them; and that there was no use in trying to keep bees any longer. Thus the thing was settled, till I took it up again. I procured Mr. Langstroth's book and two swarms of bees in frames, and went at it, with the help of some of my knowing friends. The consequence was that the experiment came to a speedy termination the following winter. Since then, I have had better success. Last fall I took the first premium for honey, in New Haven county, and intend to do the same this season. I get my honey in drone comb as much as possible, and generally in small frames. These are set in a large box over the hive; and then, while the comb is built, they are moved apart gradually, till I obtain very thick combs—in fact, as thick as I please, if the season is favorable and long enough. It is very saleable—much more so than in thin comb. Then too, if the clover season lasts longer than was expected at first, it gives more room for the yield, without the bees being required to finish and cap it with buckwheat honey.

I have about fifty or more stocks at the present time, and have had very few swarms. They are storing honey fast at present, though I had to feed considerable last spring. Those that I fed most, are doing best now. The Italians (of which I have some) were almost entirely out of stores; in fact some had not a pound of honey in their hives before I was aware of their condition. They are doing very nicely at this time; and I shall probably not have a black queen at the close of the season.

I received a queen from Mr. Langstroth—one of his twenty dollar ones. She is doing well. I have taken all the eggs away from her as fast as laid, for breeding purposes. A short time ago, I introduced a young queen from her in one of my stocks, by smoking, catching and removing the old queen, and sprinkling with honey both the bees and the young queen. I then let her go at once. I saw when looking at them to-day, that she is all right, and has been laying quite extensively. Perhaps the method would not always be safe; but I shall try it till I fail. I should not, however, recommend it where a valuable or a dear-bought queen was at stake, until it had been more fully tested.

I find in one of my stocks of black bees something that I never noticed before. Whether it is a disease or not I do not know. I never saw a notice of anything like it in any paper or books on the subject. I enclose a bee for your inspection. Please report if you know what it is. You will perceive that it is something connected with the parts that secrete the wax; and I have seen some of them with the wax scales very thick and long, sticking to the body.

WILLIAM A. BARNES.

WEST MERIDEN, CONN.

☞ The bees sent were so crushed in the mail that it was impractible to separate and identify the parts referred to.

At Franklin, Ohio, recently a swarm of bees settled on the head of a horse standing in front of a church, and the owner of the horse went to his assistance. The bees settled on him too, stinging him senseless. A doctor shaved his head, and extracted fifty or sixty stings from his scalp. The horse was stung severely, The bees had come from a hive in that vicinity.

The prompt application of a few gallons of cold water, from the rose of a common watering pot, sprinkled directly on the clustering bees, would have obviated all difficulty in this case, and saved both horse and owner. A little knowledge, presence of mind, and calmness, would have been exceedingly serviceable here; for nothing is more apt to rouse the ill-temper of bees than to come in contact with a sweaty horse; and a horse is a most helpless animal, when attacked by bees.

ADVICE TO A YOUNG BEE-KEEPER.

"When you don't know what to do, don't do you don't know what."

[For the American Bee Journal.]

Response to Inquiries.

NEW BEGINNER wants my reasons for the size of hive, &c. In the first place, New Beginner is mistaken about the capacity of the hive. It contains just 2000 cubic inches inside of the comb frames; and as a good queen will occupy nearly every square inch of comb surface in said hive every season with brood, a hive of less capacity would not answer in any climate, when properly worked. I worked my most prolific queen this season, in three weeks, up to the entire capacity of the hive, and two combs over, by feeding her when required, and giving empty worker comb as fast as she used it. I selected comb containing but very little pollen. At the end of three weeks, when the first eggs laid commenced hatching, nearly every cell was occupied, even into the extreme corners of the frames. I also gave her bees as fast as she required them, to take care of the brood. If I had given her a full complement of bees at the start, they would have stored honey and restricted the capacity of the queen. Counting the two extra frames, it makes the capacity about 2700 cubic inches.

About the inclined bottom board: I used it for years. In every hive that I ever saw it was an extra expense, and no benefit whatever, but an actual damage. If you are going into bee-keeping, you want to work your frames continually from one hive to another, and from one part of the hive to another part; and you want also to turn the frames sometimes one end towards the front, and sometimes the other. The same objections hold good against the closed top bar, and frames fixed permanent at equal distances. Friend, tie up one hand for one week, there will be no great damage done; for at the end of the week you can untie it, and you can tell for certain whether you would sooner have two hands than one. Make your hive on the Langstroth principle (say you use the form that I do), with open top bar. Be very careful to have the frames made *true*, that is out of *wind*, as the carpenters call it; have the top bar jointed true, and gaged where the bearings come on to the rabbetings or strips; have the shoulders of the top bars cut true and square, so that the frame when put together is perfectly square, and when suspended in the hive hangs just where you want it, without any fixture to keep it at equal distances.

Now, if you want to try the two methods, dress out pieces one-quarter of an inch thick, one and-a-half inches wide, and tack them on to the top bar; cut out notches for the bees to pass into the honey boxes, on the same principle of the American hive; tack on little blocks or bits of tin or zinc on the side of the frame, or have a notched stick at the bottom, or a stick with wires, to keep the frames at equal distances at the bottom. Apply all this in some of your hives and try the two methods. When you are satisfied you can take off these fixtures.

To test the inclined bottom, raise the rear of the hive, in some cases, and let others set perfectly level; and if you get one cent more profit from those with the inclined bottom, other things being equal, you will discover more than I have been able to do in nearly forty years practice, and I have been a very close observer. A hinged bottom-board is also attended with extra expense, without a corresponding benefit.

I object to the permanent bottom-board also. With the permanent bottom-board you have got to take out the frames and bees, to clean out in spring; and you will frequently want to know the exact condition of your bees in winter, without disturbing them. With a permanent bottom-board and closed top bar this is impossible. With the hive I use you can tell their exact condition at any time. You can see whether there are any dead bees on the bottom-board, or any honey on the top, &c., without any disturbance whatever.

Should you think that a side-opening hive is a good thing, make your hive enough wider to take in an inch board in place of a frame. Then you have all the advantages, without any of the disadvantages. But you will soon learn to have your comb built so true in the frame is to dispense with the loose board altogether.

New beginners want to test these things for themselves;—at least I did, when I was a beginner; and my object in telling you this is, that you can try nearly everything without being at the expense of making different hives; for nearly every one of these theories can be applied to the same hive, or the size of the frame need not be varied. A hive with a small frame is altogether ahead of a hive with a large frame, for artificial swarming, queen raising, equalizing colonies, &c. New beginners will imagine that they see advantages in this whim and the other, when there is no advantage, but disadvantage rather. At least I judge others by myself. I had that disease very hard, but am "so as to be about again," as the saying is. Some people are extra anxious to get their fingers into other people's pockets. They imagine that Mr. Langstroth is making money out of his patent, and they rack their brains to get up something different from his, so as to obtain a patent and get a share of his money or money that belongs to him. I give no great credit to any person after seeing his hive, and the principle of movable combs, for making alterations, &c. I have made a great many alterations, for the sake of testing by actual experience, yet I never thought of applying for a patent Last week I was sent for and requested to go and see some bees in the shallow things, and I had the curiosity to measure the depth of comb, and it was just six inches.* The bees have done nothing, and cannot do anything but only live along from one season to another, fight against moths, and finally give up the ghost. Now, I have almost come to the conclusion that Mr. Langstroth never sent out such a hive. It must be some mistake of the agent or some one else. In fact, I have thought of it considerably since reading and replying to Mr. Alley. Will some one set me right on that question?

ELISHA GALLUP.

OSAGE, IOWA.

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*The frames of the *shallowest* Langstroth hive ever used or seen, are *eight* inches deep. ED.

[For the American Bee Journal.]

Novice, and his Successes.

DEAR BEE JOURNAL, AND ALL YOUR READERS:

We cannot help wondering how many of you are using the comb-emptying machine, and we cannot help pitying those who do not know anything about it, for being so much behind the times. Just hear the advantages as we manage the *institution*, as our friends call it.

Well, we told you about the two story Langstroth hive which we had arranged, and what a tall colony we had ready for the white clover blossoms; and we also mentioned our plan of taking honey out before the bees could have time to cap it over. Before commencing, we selected nice worker combs for the lower or breeding apartment, and put all the drone comb above, after emptying out of it all the honey we could get, to prevent swarming. We claim this last idea, Mr. Editor; and, by the way, we can take the honey out of the frame with brood in it, in all stages, *sealed* and *unsealed*, by turning it at the proper speed, without injuring the brood at all.

Well, we took out at first fifteen pounds; and in six days more, from the upper story only, thirty-six pounds; five days after, forty-five pounds more; in six days again, twenty-five pounds; five days later, up to yesterday (July 13), forty-two pounds additional;—making in all *one hundred and sixty-three* (163) *pounds* of nicer honey than we ever saw before. And we are not near through yet, and have good reason to think that if we had taken out the honey more frequently, we should have obtained a still greater quantity. For we twice found the combs so full that the bees had begun to fill up all the little chinks about the hive; and a similar hive which we emptied only three days before the last time, had nearly as much honey as the one mentioned.

Do you know, Mr. Editor, that this seems almost incredible, especially from a locality where it is generally supposed that bees cannot be made to pay expenses? The heaviest yield from a black colony that I have heard from here is less than forty pounds in a season.

We have just received a couple of hives from Mr. Langstroth, as he makes them now; and we must say that, in our opinion, they are far in advance of the American hive, or any that we have seen. The American hive looks very well without bees in, or even with a swarm one year old; but with old heavy swarms, such as we have now, we find it a decided relief when we get round to the Langstroth hive in operating. In our judgment, we should have been several hundred dollars better off; if we had used no other than the Langstroth. There is an advantage in using the same frames above, that we do below, which can be compensated for in no other way; and this would be decidedly impossible with the American or any other form of hive that we are acquainted with, except the Langstroth.

We have another plan of our own, viz:—Have an extra set of empty combs to commence with; replace those taken out, with these, so as to open the hives but once. Some of the hybrids object at first to being shaken off so much; but they soon learn to take it as a matter of course, and crawl back into their hives and go to work as if that was the way the bees had always done.

This plan of operating has straightened all our combs, removed all our irregularities, and equalized our stocks, so that they are rapidly becoming equally productive, one with another; and in going over the hives we can see just what each one is doing, and can supply brood or whatever else is needed, with scarcely any trouble and hardly any loss of time.

The bass-wood honey has lately commenced being brought in, and the aroma arising from our machine is equal to being right among the trees themselves. As it is sealed up in the jars immediately, we have its full flavor preserved.

Mr. Editor, we have put boxes on only two hives this season, and we really do not feel as if we ever wanted to see any more honey in boxes. It is such a miserably slow business to get them filled; and it seems to me that any one who has had our honey, clear as crystal, in the neat and clean way in which it is put up, would not care to have beeswax mixed with it any more. Our "better half" is expressing fears that we shall soon have no room for anything else than jars of honey, as they threaten to fill the premises entirely.

Mr. Editor, we are realizing our fullest expectations with our bees, and our hugest dreams of piles of honey. Hurrah for the Italians, for the Bee Journal, and bee-keepers in general! May their numbers never grow less, and may they all have as much cause to be thankful as has

Novice.

[For the American Bee Journal.]

Murfreesboro, (Tenn.,) July 15, 1868.

S. W. Cole writes from Andrews' Chapel, Tenn., that there are no Patent Hives nor Italian bees in Tennessee. I wish to say that of Patent Hives there are, in our section of the State, several, and perhaps too many. In the spring of 1867, Mr. T. B. Hamlin, of Edgefield Junction, and ourselves, commenced to keep bees in the Langstroth hives. Mr. Hamlin commenced at once to Italianize, and now has seventy-five (75) colonies with fine impregnated queens. Mr. Hamlin obtained Italians from the best sources in this country, and also had some imported expressly for himself.

Last fall we obtained an Italian queen from Mr. Langstroth, which we did not succeed with. This season we procured several from Mr. Hamlin, progeny of both his Langstroth and imported stock, and have just destroyed our last black queen. Thus we have not only Patent Hives, but Italian Bees also, in Tennessee; and the bees are in hands who will be as likely to keep them pure as any in the country.

If Mr. Cole can call at either Mr. Hamlin's or our place, he can get about as much information in regard to both hives and bees as at any one place in the country.

Munson & Willey,
Proprietors of Tennessee Nursery,
Murfreesboro, Tenn.

[For the American Bee Journal.]

Alsike Clover.

Mr. Editor:—I am already receiving inquiries from some of the readers of the Bee Journal, about Alsike clover seed; and whether the plant is as good as recommended for bees. Others who profess to have raised it, say that after the first year it will run out. Now I am satisfied that any one who sows the *genuine* Alsike clover will, in two or three years, come to a conclusion just the reverse. It is now over three years since I first sowed it, and it is thicker on the ground this season than ever before. As for the height of it, you can judge for yourself, as I send you a sample of it to-day by mail. Some of the stalks that I send you measured over five feet in length, when first pulled up.

It is one month to-day since the bees first began to work on the blossoms. They have been on it almost like a swarm ever since, and will be for about a week longer, when I shall cut and cure it for seed and hay.

Some of my new swarms, made the first of June, have filled two boxes of honey weighing about twenty pounds each; and are now filling the third. I have divided them again, meantime. The bees of some of my neighbors, out of range of Alsike clover, have deposited but little honey in boxes, and in a majority of cases not any. The reason is, we have had extremely hot and dry weather, which prevented the flowers from yielding their usual amount of honey; and I have no doubt it had the same effect on the Alsike clover blossom. But, as I had, this season, fifteen acres of it in bloom, and only fifty stocks of bees to work on it, they of course could find plenty to gather.

I shall have a considerable quantity of the genuine Alsike clover seed to dispose of the coming fall and winter. I will give notice of it when it is ready for sale, and the price, by advertising in the Bee Journal.

H. M. Thomas.
Brooklin, Canada West, July 13, 1868.

[For the American Bee Journal.

A Query Answered.

In reply to your correspondent, A. J. Fisher, I would say that I made several boxes long enough to hold ten frames each, from small hives wherein I had been rearing queens. I then paralyzed enough of the small colonies, as described in a former article, to make a good swarm, and put them into two of these boxes. One, having no bottom board, was set on the top of the other, and the twenty frames had honey enough to last them until Spring, when they were given some more. These swarms were very convenient for dividing up early for queen raising. They wintered as well as any swarms, although made up from a dozen or more small colonies.

We have had a cold and rather unfavorable Spring here for bees, as they gathered no surplus until after the tenth of June. Since then the weather has changed, and they are now doing finely.

J. L. Hubbard.
Walpole, N. H.

THE AMERICAN BEE JOURNAL.

WASHINGTON, AUGUST, 1868.

☞ THE AMERICAN BEE JOURNAL is now published monthly, in the City of Washington, (D. C.,) at $2 per annum in advance. All communications should be addressed to the Editor, at that place.

☞ Desiring to have the BEE JOURNAL issued punctually on the first day of each month, we would request that communications intended for its pages be forwarded so as to reach us on or before the 15th day of the month in which they are sent.

☞ We desire to engage the services of well qualified agents, to procure new subscribers to the BEE JOURNAL at the several County and State agricultural fairs and exhibitions, the ensuing fall. Liberal terms allowed to competent and responsible canvassers.

Pure Fertilization.

We furnish our readers, in this number, with a full account of the Köhler process for securing the pure fertilization of Italian queen bees, which cannot fail to be of interest to all bee-keepers—though it is not, in fact, a new discovery, but merely a shrewd modification or adaptation of suggestions made by Dzierzon, when first introducing Italian bees.

Other bee-keepers in Europe, it will be seen, claim to have employed similar methods simultaneously with Mr. Köhler. We have reason to know that Mr. Grimm, of Jefferson, Wisconsin, successfully employed substantially the same method several years ago, when Italianizing his apiary ; and trust to be able to show in our next number, that the same or similar and equally efficient methods were devised and employed in this country, without previous knowledge of the Köhler processs.

We had an unexpected opportunity to test the efficiency of the Rodelsperger bee-bob, mentioned in our June number. On the 4th of July, a swarm of bees, desiring probably to declare themselves independent of the mother stock, issued in hot haste from one of our hives, at a temperature of blood-heat in the shade, and settled on the dead limb of an old locust tree, fully fifty feet from the ground. As it was difficult and rather hazardous to climb the tree to dislodge them, and there was no ladder of sufficient length at hand, it occurred to us to try the new bee-bob. Hastily adjusting together, with suitable interspaces, four or five small frames containing empty combs, we fastened them to one end of a long light pole, and put the implement in the hands of an assistant, who ascended the tree to a point from which he could reach the cluster with it and place the bob directly over it. A portion of the bees very soon took possession of the combs. The bob was then gently lowered and its contents shaken out in front of a hive on a sheet spread on the ground. Luckily the queen was among the bees brought down at the first haul. She was at once seized and caged, and placed at the entrance of the hive designed for the reception of her and her companions. The bees still on the tree soon began to uncluster, took wing, and after whirling around erratically awhile in quest of their missing mistress, succeeded in finding her at the entrance of the hive, of which they forthwith took full possession. The queen, still caged, was then placed among them, suspended between two of the frames, and liberated next morning.

The account of this invention, given in the June number, should have been credited to the "*Bienenzeitung*," from which it was translated.

The first number of a "GUIDE TO THE STUDY OF INSECTS," by A. S. Packard, Jr., M. D., has been issued from the press of the Essex Institute, at Salem, Mass. This work is intended to be not only a scientific, though popular, introduction to entomology, but also a treatise on insects injurious or beneficial to crops, and will be illustrated by nearly five hundred engravings. Such a Manual of American Entomology has long been needed, as most of the foreign works accessible, besides being costly, are deficient precisely in that which the student needs here.

The importance of a familiar knowledge of our insects, to farmers, fruit-growers, gardeners, and others, is constantly becoming more apparent, and the intelligent among them will hail with pleasure the appearance of the "GUIDE." It will be published in eight or ten parts, at fifty cents each. Part 3, to be issued in August, will begin an account of the *Hymenoptera* (Bees, Wasps, Ichneumon Flies, Saw Flies, &c.,) giving the distinguishing marks of the group, its structure, and special explanations of terms used in describing the various species, with their geographical and geological distribution.

[For the American Bee Journal.]

Straw Movable Comb Hive.

In the Bee Journal for June 1868, page 235, Mr. J. Davis suggests a minute description of the various kinds of hives in use, with illustrations. This would be instructive and useful. As regards myself, I use a straw hive with suitable modifications to adapt it to the employment of movable frames. Mr. Langstroth, on page 331 of his work on the "Hive and Honey Bee," says:—"Straw hives have been used for ages, and are warm in winter and cool in summer. The difficulty of making them take and retain the proper shape for improved bee-keeping, is an insuperable objection to their use." Of the many board hives annually patented, the beekeeper who practices artificial swarming, will find in the Langstroth hive all he needs. The comb frames supply all that is requisite for rational bee-culture. I have made many experiments with comb frames, broader or narrower, but am best pleased with a width of 1⅛ inch, as Mr. Langstroth directs for the upper bar.

Straw hives are unquestionably to be preferred to others; that is, if arranged for movable combs. I am very far from desiring to claim that I have the best hive in the world, as some inventors seem inclined to do; because I have not yet actually tried every kind, nor even seen them. My hive is made of straw, is square in shape, and presents all the requisites demanded in Langstroth's work on bees. It is patented and yet free, because I am a zealous friend of bee-culture. William Henchen.

Bloomington Ferry, Minn.

[For the American Bee Journal.]

Wintering Bees.

I keep my bees in a deep dry cellar, where it never freezes. It is a part of the house cellar, partitioned off by itself; and has one ventilator from the top, extending outside. I carry the hives in during the first part of December, and pack them about four inches apart, and sometimes two or three tiers deep The entrances are left open, and the room kept dark and quiet. A small trap is kept set, to catch the mice.

In the fall of 1866, I carried in thirty-eight swarms. The next spring was quite late, and they were not removed until the 8th and 9th days of April, when they were all lively and smart, except one swarm, which had starved a few days before.

In 1867, I carried in fifty-three swarms. One of them had no queen, and less than a quart of bees. These perished in a short time, leaving the honey for my own use. The others all came through in extra fine condition, and were removed about the 25th of March.

I give a little upward ventilation, when possible; and always deem it essential to keep the hives open. J. L. Hubbard.

Walpole, N. H.

The sounds emitted by bees, are not produced, as Gundelach states, by the attrition of the abdominal segments on each other; but by a forcible discharge of air through the spiracles of the tracheæ.

Edgefield Junction, Tenn.

I want the Journal continued, and would like to receive the first and second numbers of volume third. I would not miss having the Journal for five times its cost. I have Quinby, Langstroth, and other old works of this country's production, and would take Huber, or any other work of much interest on the propagation and culture of the bee. I reside so far from any taking much interest in the bees, that I feel the want of all reliable information possible.

The queen from Italy, through Mr. Grimm last fall, is doing finely, her progeny differing from the queens from Mr. Langstroth and others by having more or larger of the white streaks on the after part of the abdomen.

I have now seventy-four stocks in Langstroth hives, and think all except four have purely impregnated Italian queens, and those four are hybrids. I can raise queens from two to three weeks sooner here, than it can be done north of Kentucky. I had young queens and drones flying on the 10th of April, and have no black bees nearer than one-and-a-half miles. All my tested queens of this season are producing pure workers One colony had sealed queen cells on the 3d of April. I have found three young queens in one stock at the same time; and an old and a young queen in each of two other colonies.

I have a young queen hatched May 20, wings and all seemingly perfect, but she is not fertile. Will she be likely to mate after so long a time? T. B. Hamlin.

June 22, 1868.

☞Young queens have been known to become fertilized after much longer delay.

Barnstable, Mass.

I wintered fifteen stocks last winter, on their summer stands. Most of them were in good condition in the spring. Some of them are pure Italians; the remainder more or less mixed.

Early in March, one morning after a warm day, I discovered on the platform, close in the rear of one of my hives, a cluster of dead bees about the size of a teacup; and, on separating them, found in the centre a well marked perfect Italian queen. I am unable to tell which hive they came from, or what caused them to take an outside berth so early in the season, when the nights were so frosty. The colony in the hive behind which they were found, has sent out two swarms within two weeks.

Having never before seen or read of such an occurrence, I thought I would mention it. C. Conant.

Carthage, Ind.

Inclosed please find two dollars, for which send me the fourth volume of the American Bee Journal. I cannot afford to do without it. I gained more than enough honey from one suggestion in the Journal than would pay for it for ten years.

My bees are doing well.

P. W. McFactridge.

[For the American Bee Journal.]

Bees not Dormant in Winter.

During the past winter I made frequent examinations of a strong colony of bees, kept in a Langstroth glass hive. In the morning of cold days, they could be seen concentrated in the four spaces between the five most central combs. By two o'clock of the same day, provided the sun shone brightly, the hive would become so warmed up that the bees would be found considerably scattered through the hive some on the outside combs, some in the openings of the honey board, and many even clustering between the ends of the frames and the glass in the back part of the hive, which stood towards the south, and was consequently the warmest part of the hive. At night they would retreat to the central spaces again. This I saw repeatedly with undeviating regularity—even on the coldest days, provided the sun shone out steadily and brightly all day. The object of this separation of the bees from the main cluster is, not simply to enjoy the temporary warmth produced by the sun, but to bring from their store houses, the adjacent combs, a fresh supply of food, which is again deposited in the emptied cells in the central part of the hive. The main cluster does not change its place for the purpose of reaching a new supply of food; but the new supply is brought by individual bees, *to the cluster* from the surrounding combs. On opening a hive late in the fall, you will find the old brood-cells in the central part of the hive, completely filled with honey, but not sealed over; and this supply is replenished daily, during the winter, whenever the warmth of the sun invades the hive sufficiently to allow individual bees to leave the cluster. Hence, I infer that bees, kept on their summer stands, should have their hives exposed to the sunshine, in order to warm them up daily, and give the bees an atmosphere in which they can leave the cluster without danger of freezing.

A few years ago I wished to be especially kind to a weak stock that I was anxious to winter; and for the purpose of protecting it from the cold, I covered the hive very carefully with an abundance of straw, with boards weighted with stones balanced over it so that it could not be blown away. *The bees died*, having plenty of honey remaining in the hive, but it was out of their reach. The heat of the sun could not penetrate the *two feet* of straw, to warm up the hive; the bees were too cold to move, and they perished where they stood.

Last fall I resolved to build a house for wintering bees. Since then, I have been favored with an inspection of Mr. Langstroth's new plan for wintering bees, and am so well satisfied that it is better than any house, that I have given up the idea of building, and shall winter my bees on their summer stands.

I think I shall try an experiment this winter for darkening the entrance, without closing it; in order, if possible, to prevent the loss of bees that fly out when it is too cold, or when there is snow on the ground, and are lost. It could be brought about in this way. On one edge of a board, as long as the portico of a Langstroth hive is wide, and half an inch wider than the portico is deep, nail on a thin strip of wood half an inch wider than the thickness of the board; rest this board, with the strip turned down, on two small strips of wood $\frac{1}{4}$ or $\frac{3}{8}$ inches thick, placed one in each end of the portico. You then have a covered entrance the whole width of the portico, and the strip over the edge of the board falls a little lower than the entrance, and prevents the admission of light, and also keeps out the wind. R. BICKFORD.

SENECA FALLS, N. Y.

Bees as a Military Force.

"On the same occasion the Pacha's son and sixty officers of the rank of *Aga*, were made prisoners by a truly rustic mode of assault. The Turks had shut themselves up in a church. Into this by night, the Suliotes throw a number of *hives full of bees*, whose insufferable stings soon brought the Moslems into the proper surrendering mood."—*Note on page* 270, *vol.* 22, *of De Quincy's writings. Ticknor and Fields' edition*, *Boston*, 1859.

ALEXANDRIA, IND.

I look upon the AMERICAN BEE JOURNAL as being worthy of the patronage of every bee-keeper, as it contains much valuable information not found in any other work on bee culture. Works on the subject treat of it as a science more particularly, and could not reasonably be expected to give the experience of a large number of practical bee-keepers, of which we find so much in the JOURNAL. This, together with the careful study of bee-keeping as a science, will elevate that branch of industry to the high position which it so much merits.

GODFREY BOHRER.

LEWISBURG, WEST VA.

We have had but very few swarms here, this season. Not more than one colony in ten has cast a swarm. I have divided all of mine that would bear it. Some that I had in common box hives I transferred to frame hives, and divided them at the time of transferring. I gave one hive about two-thirds of the brood, and kept this one in a dark cool place for three days. To the other I gave the queen, and placed it on the old stand.

During the month of May, the weather was very severe on the bees, quite cold and wet. Considerable brood perished, even in the best of colonies, I think from cold.

The BEE JOURNAL continues to improve in interest and usefulness.

T. L. SYDENSTRICKER.

According to the statements of the dealers there, the annual consumption of honey in the city of Paris exceeds 1,000,000 cwt. There are about twenty commercial houses engaged in the trade—their transactions embracing both domestic and foreign products.

[For the American Bee Journal.]

Shallow Hives.

Well, Mr. Editor, this Gallup is getting into an awful muss, to pay for being so blunt and plain in some of his articles. But I want to tell the readers of the BEE JOURNAL that he had rather be killed outright than frightened to death. Mr. Alley, if I understand him aright, is an agent for the Langstroth hive. Now, it is not my wish to hurt Mr. Langstroth in the least, but Mr. Alley is compelling me to state some truths. I never have used the shallow things myself, but have had the care and management of them for my neighbors, and have examined hundreds of them in different parts of the West; and therefore probably know how they work as well as any other person. I have known a person to lose $600 worth of bees in one winter in those hives; another person thirty swarms—all he had; and I can show you at present such rejected shallow hives all over the West. I received three letters last week from different individuals, all stating, "I bought a right and hive from Mr. Langstroth's agent, but do not like it." "Mrs. E. S. Tupper commenced using the hive, but now uses the American," &c. In all my large acquaintance in Wisconsin and this State, I do not know of a single individual that uses them in the shallow form, and nearly all of them have purchased the right at one time or another. I am aware that our climate is altogether different from yours, friend Alley, but that does not prove that the Langstroth hive is the best in your climate. Now I could use the Langstroth hive here, and do well with it, but I could use the Champion, American, Thomas, Kidder, Lee, Bingham, and several other forms, and do better. To a large proportion of beginners I could recommend the Thomas or American form of hive very highly. Some of their fixtures I should leave out for myself; and to another proportion of beginners I would recommend the hollow bass-wood, or bee-gum, as it is called here.

Now for some of my reasons. In the hollow gum or American form of hive, the bees will commence about so many combs for worker combs, say from six to eight, and as they are tall in proportion to their size, those combs are carried down to the bottom all worker comb, and as the bees can cluster in them naturally, the queen breeds up to her full capacity earlier in the season than she possibly can in this climate in the shallow things. And the bees will winter as well, if not better, in such hives without corncobs than yours will with them. I certainly have no objection to your using corncobs. The objection I have is this, for a person to come around claiming that he has a valuable secret on wintering bees, &c., and sells that secret to my neighbors for ten dollars, and it turns out corncobs! It seems to me as though it would be more manly to tell that neighbor how to winter his bees without the use of corncobs, and tell it freely, "without money and without price."

Now, friend Alley, I have a question to ask. Where, in the name of common sense would or could the bees cluster in that form of hive, if not snug to the cobs, in winter, every time, supposing the cobs were there? For the very reasons I have stated, Mr. Langstroth ought, for his own interest, furnish a different form of hive to such of his customers as need them or require them. As near as I can understand, almost all movable comb hives contain the Langstroth principle. Mr. Langstroth no doubt obtains any quantity of testimonials from those that like the hive. But, as a rule, those that dislike or reject it scarcely ever write to him, but adopt some other form, and condemn the Langstroth principle altogether.

From a friend and well-wisher to the bee-keeping public, and all the while one of the best-natured fellows you ever saw. So pitch in!

E. GALLUP.

OSAGE, IOWA.

[For the American Bee Journal.]

In changing to Italian bees, last September, the first young bees gathering honey, or working at sunrise were nine days old. The first young Italians with pollen on their legs, were twenty-three days old, and these bore not half so large loads as the older bees. I have not seen any difference in age of honey-gathering or pollen-gathering bees noticed in the BEE JOURNAL. Perhaps the young bees do not at first gather honey for home storage, but only for their own consumption.

H. D. MINER.

WASHINGTON HARBOR, WIS.

[For the American Bee Journal.]

Early Swarms in 1868.

The first swarm of the season in latitude 41°, was from N. Hartman's Italian bees. It issued on the 15th of May; and the second swarm came on the 26th. They are from a swarm of last year which I sold him, put in a Langstroth hive, and packed with straw and a board in front, and left on its summer stand during the winter.

I do not know of any black bees, in this town, swarming till July this year.

J. WINFIELD.

CANFIELD, OHIO.

PLEASANT HILL, KY.

I am much pleased with the AMERICAN BEE JOURNAL. Instead of waning, it is increasing in interest; and I hope in patronage and circulation, as I perceive it is exerting a salutary influence on the country, and creating a wide-spread interest on the subject of bee-culture, and the investigation of its yet remaining mysteries and intricacies, and communicating the most simple and successful methods of management. B. B. DUNLAVY.

WEST HAMBURG.

Could apiarians know the value of your JOURNAL, none would do without it. Time, I hope, will enlighten them.

MRS. WILLIAM HARRIS.

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[From the German.]

Practical Bee-Culture.

RESERVE QUEENS.

Almost every bee-keeper knows from experience how vexatious a matter it is when colonies, old or young, become queenless, and how troublesome and difficult a task it ofttimes is to re-queen them. Yet, theoretically, it would seem that the occurrence should cause no trouble, nor give us any uneasiness. "Give the suffering colony a sealed queen cell," we are taught, "or insert a piece of suitable brood-comb, and it will soon provide itself with a queen again." The doctrine is all right; but, alas, in practice, the work of "reconstruction" does not always run on just so smoothly.

Let us take a cursory view of the cases in which queenlessness occurs.

First. A colony becomes queenless, from no fault or act of its owner, at a time when neither queen cells nor brood from which a queen might be reared are to be found, or when no drones exist to fertilize the young queen when mature.

Second. Queenlessness occurs, whether by the owner's action or interference or not, at a time when brood abounds and drones are plentiful enough. A natural swarm may issue and lose its queen; or we multiply by artificial methods, division or transposition, and thereby produce queenlessness in at least *one* of the colonies operated on; or we remove the queen of a colony while pasturage is abundant, to cause an accumulation of stores without interference from brood, and desire when re-queening it to substitute a young queen for the old one; or, finally, queens are lost on their wedding flight, or from various other obvious or supposable causes.

In the first case above stated, re-queening by means of a queen cell or brood comb is either quite impossible or so uncertain that the best practitioners advise against attempting it—deeming it far better to break up the unfortunate colony at once.

This case occurs not merely in the spring or fall, but not unfrequently in the height of summer; for when a queen is lost on her wedding flight there is usually no more brood in her hive from which a successor could be reared. In the remaining cases, indeed, re-queening by means of queen cells or brood, is not only a possible, but the natural process, (even if it be effected with the aid of the bee-keeper); though most apiarians have often found, from sad experience, that after much anxiety and delay, the result is a failure.

Even when all things concur to secure a favorable issue, a month and more may pass before a queen raised from brood will begin to lay, and another month before the young bees produced from her eggs will become active workers. Meanwhile the season of pasturage is passing away, and when the new generation is ready to work there is nothing for them to gather. This is the reason why, in districts having spring or summer pasturage only, old stocks that have swarmed late, and late second swarms, usually fail to secure sufficient stores for winter, even if they do not happen to lose their queens, and become the prey of swarms.

But matters do not always move on so regularly and systematically, as theory teaches or leads us to expect. Old stocks that have swarmed, and artificial colonies supplied with brood, sometimes fail to start queen cells; or if they do, and succeed in rearing them, the young queens not unfrequently are lost on their wedding flight. In such case, the earliest and most important three or four weeks of their brief allotted season, are already lost; the work has to be begun anew, and *possibly* we may have the gratification at the end of ten or twelve weeks, to see young workers returning to their hive laden with pollen. Much precious time has been fruitlessly wasted; many fine combs of brood have been unprofitably sacrificed; thousands of workers have been hatched merely to become mere unproductive laborers; and the end of the whole is that a feeble colony has been laboriously built up simply to be united in the fall with some other one equally feeble, in the hope of thus saving them from destruction otherwise obviously inevitable.

These are the experiences which have given many a bee-keeper a dislike for every kind of multiplication, whether by natural or artificial swarming, dreading the risks to be in incurred and the delay that seems unavoidable.

Nevertheless multiplication is absolutely necessary if an apiary is to be established, and a very easy and sure process has been suggested, whereby all the difficulties referred to and the objections urged may be obviated.

I allude to the use of reserve queens.

This is a topic that has occasionally been adverted to, or made the subject of incidental remark ; but it is one so vitally important to successful bee-culture, that we shall readily be excused for now undertaking to discuss it more minutely and in detail.

Without further preface, I assume the position that *every provident bee-keeper should adopt measures to keep a constant supply of fertile queens in reserve, through the entire year.*

Then let queenlessness occur, designedly or undesignedly, and at whatsoever season it may, a thorough radical cure of the colony is ever at command, by the prompt introduction of a reserve queen, with the usual precaution and care.

Let me illustrate this, by adducing a few examples.

In the spring or fall, when no drones exist, and brood cannot be found or obtained, we introduce a fertile reserve queen, and the colony is instantly restored to its normal healthy condition.

On a revision of his stocks, the bee-keeper infers from the scattered state of the brood in the combs, or the interspersion of drone larvæ among worker brood, that the queen of one of his colonies is no longer duly fertile, or is becoming superannuated. He at once removes her, substitutes a reserve queen and thereby rescues the imperilled stock from probable ruin.

The queen of a colony has been removed, to promote increased storage of honey during the gathering season, and the time for re-queening has now come. Instead of inserting a brood comb or a sealed queen cell, a fertile reserve queen is introduced, and egg-laying and brooding are resumed without further delay.

Again, the bees of a colony show, by their restless, roaming, inquiring deportment, or their plaintive moans, that a great calamity has befallen them, and that they have suddenly become queenless. If, while examining the stock, the bees become quiet and seem content, so as to create a doubt of their condition, insert a sealed queen cell, and if it is not destroyed within twenty-four hours, they have no queen. Give them a reserve queen, and the misfortune is remedied.

Artificial multiplication of colonies cannot be too highly recommended, especially to such bee-keepers as are compelled to be away from home frequently during the swarming season. But precisely the easiest and most convenient mode of making an artificial swarm (placing a few brood combs in a hive and setting this on the stand of a populous colony removed elsewhere) is obviously defective and liable to fail. In the first place, bees accustomed to a fertile queen will betake themselves to mere brood combs with great reluctance, and only after long resistance—many scattering to other stock, if any be near at hand. And, in the second place, after the bees have yielded to what proves to be an unavoidable necessity, they have still to rear a young queen, which involves delay ; and they may yet lose her after she is mature. If we prefer giving to the colony the queen of the removed stock, we must undertake the laborious task of searching for her amid an excited crowd of workers—a search not always successful, and which, if successful, involves the re-queening of the deprived stock, with all its attendant risks, disadvantages, and evils. The speediest, safest, surest and most convenient mode of multiplying, therefore, is to let the old queen remain in her hive when it is removed ; place a few combs with brood and honey in the nucleus ; introduce a fertile reserve queen in a cage ; liberate her when she is accepted ; and then build up the colony by inserting sealed brood from other stocks.

If it be desired to divide a strong old stock equally, so that each division shall receive its due proportion of bees, combs, and stores, and be able to reach a wintering condition in the course of the ensuing season, the very best course is to give to each division a fertile young reserve queen immediately—unless that of the old stock be young, fertile and prolific. In such case she should be retained in one of the divisions, and a fertile reserve queen given to the other.

These suggestions sufficiently warrant the position I assumed at the outset, that every provident bee-keeper should adopt measures to have a constant supply of fertile young queens in reserve, through the entire year.

Let us now address ourselves to the pertinent inquiry—"*How shall the bee-keeper provide himself with the requisite number of normally prolific reserve queens?*

Our excellent old grandmaster, Dzierzon, has said and written much about artificial swarming, and frequently treated the matter with such glibness as induced inexperienced bee-keepers to imagine that nothing more than a handful of bees and a few square inches of brood comb are needed to produce a respectable colony in the course of the season. I have never been able to accomplish so desirable a result with such small means, and I presume that most of my worthy readers were not more lucky, unless additional comb with brood and bees were introduced, time and again. It will ever remain an inexorable rule, that if we would get an artificial swarm in a condition fit for wintering, we must bring it to full strength at once, by aiding it with brood and bees.

Almost all experienced bee-beepers agree in this, that weak swarms are never to be set up as independent stocks ; and that natural and artificial swarms and nuclei are to be strengthened at once, by immediately transposing them with the parent stocks, though each of these be furnished with a young and fertile queen. But, it may be asked, how many bees must a young colony have, to make it fit for wintering? If a good natural swarm should weigh at least three pounds, or at most six pounds, and it takes from four to five thousand bees to make a pound, then a colony should consist of from twelve thousand to thirty thousand bees to enable it to pass the winter safely. In what then consists the ability of any kind of artificial swarm to increase, from a mere handful of bees, to a due wintering condition? It is certainly not to be found alone in the circumstance that the swarm has been made a few weeks earlier in the season. It arises solely from the practicability of gradually, yet speedily, building up the feeble community, by the regular introduction of brood and bees from other colonies. But this is in direct contravention to the assumption that a handful of bees, in possession of a comb of brood, can develop itself in the course of the season to a colony qualified to pass the winter safely. Yea, it would be like adopting a business in which I am assured that, by an investment of ten dollars, I should gain a thousand. But the ten dollars prove to be only the first outlay, to which ten more are to be added, and then thirty, again a hundred, and furthermore two hundred in addition. If I cannot do this, then the thousand dollars gain will ever remain among the things to be hoped for. If I cannot add to the little swarm or nucleus first one, and then two, and finally three, four or five combs with brood, and very likely also several combs with honey, it will never reach a condition fitting it to withstand the rigors of winter, and whatever is done is totally lost.

Now, worthy friends, those of you who are masters in bee-keeping Israel, may do as seemeth good in your own eyes; but let the younger brethren, whose minds are yet open to good counsel, be advised never to make small artificial colonies in the expectation that these will, by *unaided natural growth and development*, become strong winter-standing stocks in the course of the season. On the other hand, when they resort to artificial swarming, let them be sure to make their colonies strong at the outset, each having at least twelve thousand workers, or obtaining that number, within ten days or two weeks, from the brood combs inserted in the hive. Let them avoid all uncertain speculations, and strain after nothing which they cannot conveniently and certainly reach. A large number of small swarms is easily made; but to strengthen them afterwards and build them up properly, by means of brood and bees, is very difficult and ofttimes utterly impracticable, unless you have already many stong old stocks.

But when the bee-keeper has thus formed strong artificial colonies, he must be not the less solicitous for their conservation and steady growth. He must not abandon them to their fate, so that, perchance, five or six weeks later, they shall contain only two-thirds or only one-half of their original number of bees, and possibly be without brood or even a fertile queen. That would be losing both interest and principal. Such a colony should never be started with a queen cell or mere brood, but always with a fertile reserve queen, so that its growth and prosperity may be secured from the outset.

The case is far otherwise with a small nucleus containing, at the start, only about a thousand workers and a comb of brood, and which receives no subsequent aid. Whether these thousaid bees furnish their owner with either honey or wax, is of small consequence. They are designed to subserve a different purpose; they are to labor for others—for the common benefit of the entire apiary; in short, they are intended to supply the required reserve queens, which future operations render so desirable and important. Though in the course of the summer, they furnish only two fertile queens, by means of which the destitution of other strong queenless colonies can be quickly relieved, they have well repaid their cost. And should it happen, as once in a while it will, that the nucleus fails to furnish any fertile queens, no serious damage would be sustained, as every judicious operator will each summer provide and maintain a number corresponding with the extent of his apiary and his intended operations.

"Ah, then, *weak* nuclei nevertheless, with brood combs, and merely to raise reserve queens! We see no advantage in that!" As you please, good friends; but consider—it is not a matter of indifference whether a nucleus of one thousand bees be engaged for weeks and months in rearing queens, or a colony of from twelve thousand to sixty thousand bees be thus occupied during that time. It is not a matter of indifference whether a small colony or a populous stock be kept queenless. It is not a matter of indifference whether the bee-keeper has to examine repeatedly a nucleus containing only three combs, or a colony containing ten, twenty, or thirty, before he can ascertain whether the queen newly raised has become fertile.

I will now state my method of raising reserve queens.

First of all, nucleus hives must be provided, of a size fitted to receive three combs or frames each, such as are used in our large hives; and there should be from three to six such for every ten of the large hives in the apiary, according as increase of colonies is intended to be more or less rapid during the season.

These nucleus hives should not be populated in the spring, till after the bees have been gathering honey and pollen plentifully, and the brood combs are well stocked with eggs and larvæ, some drone brood being already capped. Though I may name definite days for operating, I do so simply for illustration; since the weather, temperature, and other circumstances may compel various deviations from regular routine. I am besides no advocate of early multiplication, because I know from experience that in most localities brood developes slowly in the spring, and an early abstraction of brood and bees is detrimental to the old stock.

About the 30th of April, take two nucleus hives for every ten old stocks that have been wintered in good condition, and insert in each nucleus one empty worker comb. At this period, there will probably be found among ten old stocks two that can each spare a comb of worker brood; and the remaining eight will be able to furnish in the aggregate four thousand workers. A comb of brood is now to be placed in each nucleus; and where circumstances permit, combs containing a large proportion of capped brood should be selected, though it is indispensable that they contain some eggs and recently hatched larvæ. The lower margin of each brood comb should also be pruned off till the cells containing eggs and larvæ are reached. This is not absolutely necessary, but experience shows that bees are more disposed to start queen cells on such freshly pruned margins; and cells there built can usually be more easily removed. When the nucleus hives are thus prepared, the old stocks are to be opened in succession, a brood comb lifted out of each and the bees brushed off from it into the nuclei until each contains about two thousand—replacing the combs in the hives from which they were taken. A comb containing about one-and-a-half pounds of honey is now inserted in each nucleus. These are then closed and carried into a cool, dark, dry cellar or chamber—the entrance of each nucleus being secured with wire gauze or a piece of perforated zinc, for ventilation and to confine the bees.

The bees will speedily start queen cells. On the ninth day, or on the 9th of May, the nuclei are to be examined, to ascertain how many sealed queen cells each contains, or rather how many queen cells can be made available uninjured by removal.

Assuming that from the two nuclei eight queen cells may be taken uninjured (and there will rarely be more, usually fewer), six more nuclei hives are to be prepared by inserting an empty worker comb in each; and they are then carried to a chamber, or other suitable place with closed doors and windows shut, so as to be free from annoyance by the bees in the apiary. The brood combs are now to be taken out of the nucleus hives, the bees brushed off into each hive, and all the queen cells, save one on each comb, carefully cut out, the comb replaced, some honey introduced if needed, and the nucleus again closed.

The queen cells thus obtained are to be laid on some soft cotton wadding, and gently covered with the same article. The nuclei are then to be examined, to ascertain whether they still contain a sufficient number of bees. If there are at least a thousand remaining in each, and the combs still contain a considerable quantity of unmatured brood, all right. But if the number be smaller, they should be reinforced from those that have flown to the windows—which may be brushed into a basin of water, strained out, and restored to their companions. These two nucleus hives are then to be replaced in the cellar or dark chamber, whence they were brought.

The six additional nucleus hives are to be treated as follows: Close the entrances with wire gauze or perforated zinc, and suspend in each nucleus a comb filled with brood, and all the bees adhering to it, taken from one of the eight remaining old stocks.

Now, new nucleus No. 1, is to be taken in hand. Open it, lift out the brood comb, brush off all the bees into the hive and on the empty worker comb it contains, insert a queen cell in the brood comb, and replace it in the hive, which is then to be closed and set aside.

Next, *new* nucleus No. 2, receives attention. It is opened, the brood comb lifted out, and the bees brushed off into *No.* 1, (which is to be opened to receive them), and the deprived comb is set aside temporarily. To this nucleus is also given a comb containing about one-and-a-half pounds of honey. Thus supplied No. 1 is again closed, and sent to the cellar or dark chamber. We then take No. 2 in hand again. Inserting a queen cell in the brood comb taken from it, (and from which the bees were brushed into No. 1 before it was set aside), it is replaced in No. 2, on the empty comb in which some bees will already have collected. No. 3, is now opened, the brood comb lifted out, the bees brushed off from it into No. 2, and the comb set aside temporarily. Giving No. 2 a comb of honey likewise, we close it and send it also to the cellar or dark chamber.

This process is repeated till five of the nuclei have thus been formed, and dispatched to their colleagues in the cellar or chamber.

For nucleus No. 6, we have a brood comb and a queen cell in readiness, but we still want bees. We insert the queen cell in the brood comb, placing this in No. 6. We then open those of the ten old stocks from which no bees have yet been taken, lift a brood comb out of each, brush off the bees into No. 6, and replace the combs in their respective hives. If more bees seem to be required, brush those gathered at the windows into a basin of water, strain them out as before, and introduce them in No. 6. We then give this nucleus a comb of honey also, and send it to the others in the cellar or dark chamber.

Your old stocks must be in good condition to be able to furnish bees enough for eight nuclei so early as the 9th of May. It was nevertheless judicious to make two nuclei on the 30th of April, so that all the labor should not be lost in case one failed to raise queen cells. But on the 9th of May, it is a matter of serious consideration whether it be not too exacting to demand bees for eight nuclei from ten old colonies. The masters, indeed, tell us that the removal of a comb of brood or of several thousand bees from a strong colony, is only a beneficial deprivation; but they expressly caution us against applying the process to a colony still weak. Those who are not yet masters are very apt to regard weak stocks as strong, because they wish them to be so; and they are the more easily tempted, especially so early in the spring, so to reduce a weak colony that it can recover only with difficulty, and will produce neither a swarm nor surplus honey that season. Where no large increase of stocks is contemplated, it is useless to start so many nucleus hives; but even where such increase is desired or designed, it is best to be cautious and make only two or three additional nuclei on the 9th of May, instead of six—unless the old stocks are already very populous.

The nuclei are now finished and placed in the cellar or dark chamber. Here they are to remain till all the young queens and most of the brood have emerged; and that this may not involve too much delay, the nuclei were furnished on the 9th of May, as far as practicable with capped brood. They are then to be carried to some place in the garden where they can remain undisturbed during the summer. But they must not be set in close proximity to other populous stocks, nor too near each other, or the young queens may go astray when returning from their wedding flights and be destroyed. As to the time of removal, there is a difference of opinion. Some think they should be kept in the cellar or in the dark not longer than from three to six days, that the emerged queens may have an early opportunity to make their excursions, and the bees begin to work. But these reasons are of little weight. How many queens reared in populous colonies are prevented for days from flying, by unfavorable weather; and an early fertilization of these reserve queens is of far less importance. It is much better that a large number of workers have emerged previous to removal, and it is hence early enough to bring them out on the ninth day, or on the 18th of May. They will then be more populous and thrive better. But if the weather be bad on the 18th, better let them remain in the dark till a change takes place.

At last we have them in the open air. Now each nucleus is to be carefully inspected. If in any the bees have failed to raise a queen, we we introduce immediately a comb of suitable brood, with all the adhering bees, from one of the most populous stocks in the apiary, that it may make up for lost time with all speed; or we give it a sealed queen cell, if we happen to have one in some old colony.

The young queens will be fertilized in due course. As soon as one of them begins to lay, she may be used as a reserve queen; but it is by no means necessary that she should be thus disposed of at once. It is better to allow each one time enough to deposit eggs plentifully before she is removed. We can then form some opinion as to her quality and prolificness, from the more or less compact arrangement of the brood in the combs, and the quantity of eggs she lays in a given time. This also saves us some further trouble, for if the young queen be removed when she has laid only a few eggs, we shall have to insert another brood comb, or the nucleus will become too much depopulated.

As soon as the young queen is removed from a nucleus, the bees proceed to rear a successor. This imposes the necessity of careful watching, to be certain that this successor becomes fertile in due time and lays worker eggs. Each successive removal will be followed in like manner by renewed queen-raising, if the young queen laid eggs before leaving. If sealed queen cells are at command on such occasions, they can be used with advantage.

If there be any interruption in this business—if the bees, for instance, neglect to start queen cells in any case, or prematurely destroy those that have been started; or if a young queen be lost on her wedding flight; the bee-keeper must act promptly, by inserting a comb of brood from some other hive.

Of course supernumerary sealed queen cells will occasionally be found in some of the nucleus hives, under this management. These must not be permitted to hatch, or a very undesirable swarm might issue. If there be no good opportunity to use them elsewhere, the cells should be destroyed.

If a nucleus has been repeatedly deprived of its queen, or has failed to rear one, it will become much depopulated, and should be reinforced by introducing a brood comb with its adhering bees; and as the season advances combs with sealed brood will be more abundant in the old hives. The nuclei must never be allowed to suffer from want of food—for which purpose, at this season, sugar candy dissolved, or sugar syrup diluted, is preferable to pure honey. If a queen remains a long time in the nucleus after she begins to lay, the little hive may become over populous. In such case a portion of the bees and brood may be used to strengthen weaker nuclei or other stocks; or a new nucleus may be formed, as before described. But if we are satisfied that we have already more reserve queens than we are likely to need, such a populous nucleus may be transferred to a large hive and built up to a strong colony by giving it brood and bees from other stocks, or by transposing it with some populous colony.

By these means we shall always have a supply of fertile reserve queens at disposal, from the first of June onward. In districts with very early pasturage, an earlier commencement may be made; but I would caution against beginning anywhere, till some of the old stocks that have been wintered contain capped drone-brood.

Well, now, suppose that, in the course of the summer, we have effected the desired increase of colonies, and all of them have fertile queens, we still have the nuclei on hand, and these have fertile queens also, or have started queen cells anew. What is to be done with them? Primarily, nothing more than to see that they do not suffer want.

About the end of September, or at latest in the early part of October, the last general examination and revision of the apiary must be made. If a queenless colony be now found, a fertile queen must at once be introduced; and the nucleus from which this queen is taken is thus made queenless. It is then immediately broken up, by transferring bees, brood, and honey to some colonies that will be benefitted by such aid. But we still have remaining a number of nuclei with fertile queens. To be able the more readily to unite these, they are, after the 1st of September, to be gradually set closer together, till they are finally all brought side to side. Now, we remove them and place on their stand one or more larger hives; transfer thereto the combs and bees from these nuclei; supply them with the requisite honey to carry them through the winter; and place them in a dark cellar till spring.

But it were a great pity to lose the supernumerary fertile queens resulting from this process of uniting. We must therefore endeavor to preserve them, which I do as follows: While uniting these nuclei, I select and retain for the duplicated colonies the largest and finest of the queens, and catch and cage the others, suspending each temporarily on a comb in her own small hive, and setting these on their former stands. After a few hundred of her own workers have clustered around each, I close the hive so that not a bee can leave, though I give them sufficient ventilation and food. Small as these nucleus hives are, so diminutive a body of bees could not be successfully wintered in them. I therefor prepare some small boxes about six inces long, broad and deep, which can be conveniently set in the now empty honey chamber in the top of my standard hives. These are furnished with combs containing about two pounds of honey, and in each of them is placed a liberated queen with her adhering cluster. When they have become settled, the entrance is closed with wire gauze; each box is now set in the honey chamber of a populous colony and packed in moss. The bees of the standard hive are of course shut off from the honey chamber, and a small hole is cut in the front of the hive for the use, at the proper time, of the bees in the box, but is kept closed till needed. In February or March, according to the season or the weather this hole is opened, the wire gauze removed from the entrance of the box, and the bees allowed to fly out occasionally.

If, in the early spring, I discover that one or more of the colonies in my apiary has become queenless, a remedy is at hand in the small box hives, and the preserved queens are at once used to set matters right. Should they not be needed for this purpose, a nucleus can be formed early, by means of each surviving queen, and kept in a dark cellar till the brood given to it has emerged. As soon as spring fairly opens and the bees can gather pollen and honey, this nucleus may be brought out, set on its designed stand, and either formed into a strong independent colony by further additions of brood, or kept in reserve for any emergency that may arise.

In this way the bee-keeper may preserve these fertile queens, and start artificial colonies much earlier than usual; which, having a long season before them, can hardly fail to thrive, become populous, and secure stores enough for winter, without subsequent aid.

Those who visit Paris on the 15th of August, (Napoleon's day) will be amazed to see the immense quantities of cakes displayed on the banks of the Seine, in Passy, at the Bridge of Jena. On the rising ground, all the way up to the Arc of Triumph, stand after stand is seen loaded with ginger cakes, honey cakes, and sugar cakes, of all qualities and prices—cheap, dear, good, bad, and indifferent.

The Dahlia, it is said, possesses some narcotic property which seems to paralyze bees when they enter the flower for the purpose of collecting the honey or the pollen. In the fall, when the Dahlias are in full blossom, numbers of bees may be found in them in a state of stupefcation, which ends in death if they are not removed from the fatal influence of these flowers.

[From the Bienenzeitung.

Cure of Drone-Breeding Colonies.—Introducing Unfertilized Queens.—Artificial Swarming.

The cure of a drone-producing colony having a fertile worker is still regarded, by most bee-keepers, as a difficult task, attended by many annoyances, and always of doubtful issue. And yet nothing is easier than to cure such a colony—else infallibly doomed to destruction—radically, in ten minutes.

I made known the process at the Convention of German Bee-Keepers at Hanover, in 1860; but it does not seem to have attracted the attention which it merits. It is simple and perfectly reliable, whilst all other processes hitherto suggested, troublesome and tedious as they are, very seldom prove successful. All that is required is to stupify the colony by fumigating it with puff-ball smoke, and at once introduce a fertile queen among the bees before they revive. This done, the cure is effected. It is not even necessary to make an examination next day, to ascertain the result, for the process never fails. Nothing can be more simple, and it is applicable in every form of hive.

I think I have also, on a former occasion, explained incidentally how I manage to induce colonies, in movable comb hives, to accept unfertilized queens. But it may be useful to restate it here. One or more combs containing suitable brood are to be inserted in a queenless colony, and in four or five days they are to be examined to ascertain how many queen cells have been started. If I find, say, twelve such cells, I remove the queens from eight or ten of my colonies. On the twelfth day, I remove the combs containing the queen cells to the rear or side of the hive, for more conveniently supervising them, that I may be sure to see the first matured young queen issue from her cell. As soon as she is out, I brush off all the bees and the queen into the hive, destroy the now empty queen cell to guard against mistake, and insert the comb in one of the deprived colonies. I now wait till another queen leaves her cell, and then the same operation as before is repeated, and the comb transferred to another of the queenless colonies, in due order; and this is continued until all the colonies are supplied, or all the young queens are disposed of.

Unremitting attention and watchfulness, and care to examine the queen cells at least once every hour, are indispensable for success. But with them success is certain; and this watchfulness and care will save the bee-keeper the vexation, annoyance, disappointment, and loss of precious time, which are inseparable from other methods. The introduction of an unfertilized queen in a colony accustomed to the presence of a fertile one, is always attended with great risk. A just emerged queen given to such a colony is wholly disregarded by the workers, and if not at once attacked and destroyed, will commonly be allowed to starve. It is not till after a queen is four or five days old, that the bees of such a colony would begin to feed and cherish her. Besides this, longer confinement is required, for three days are wholly inadequate. All this involves delay; and "delays" here are ofttimes indeed "dangerous."

As stated, I prefer this mode of introducing unfertilized young queens, though it demands great care and watchfulness. Sometimes the young queen emerges at night, and the operator must then of course be on hand, and act promptly. He must not procrastinate, or he may wake up and find all his queen cells destroyed. It is well to mark the cells in the order they were built and sealed over, for the queens they contain will mature and emerge accordingly.

I do not like to insert queen cells, for they are generally destroyed by the bees—which does not happen to those left on the introduced comb. According to my observation, when workers have once gnawed open and destroyed a queen cell, it is almost always useless to offer them another, for they are then prone to repeat the trick, and will serve four or five more in like manner, if they have an opportunity.

Has any one tried the mode of making artificial colonies suggested by Dr. Dönhoff some years ago? In substance, I think, it is as follows: Queen, workers, and drones—which may all be taken from different colonies, are put together in a hive, which is set in a dark cellar for three or four days. Then, on a fine clear afternoon, it is brought out, set in the sun, fed with diluted honey, and allowed to fly. The entire colony will issue, *en masse*, will soon settle and cluster like a swarm, and then adhere to any location assigned to it in the apiary. Would not this also be a means of securing pure fertilization of the queen, if of the Italian race, and only pure Italian drones be selected for the colony? HUBLER.

ALTENBURG, DEC. 1867.

The bee-keepers of Gatinais, Beauce, and the neighboring villages and districts, in France, meet annually on the 22d of July, at Janville, to consult about their bees, apiaries, the construction of hives, changes and improvement in the management of bees, new inventions, processes and manipulations in bee-culture; and to ascertain the amount of honey and wax produced, so that prices may be regulated accordingly. These annual meetings are thus of great practical, scientific, and pecuniary importance to the bee-keepers who participate in them.

Probably the largest wax bleaching establishment and factory in the world, is that of M. Barret, at Tours, in France. The buildings are extensively and admirably arranged, and more than six hundred persons are usually employed there. The consumption of wax for encaustic painting, wax figures, polishing floors and parquettes, the manufacture of wax candles and tapers, in pharmacy, and for general economical purposes is very great in France, alike for home use and for exportation.

After eating a quantity of honey, we are apt tot hink our tea is without sugar.

[From the German.]

Pure Fertilization. Kruger's Method.

For convenience in operating, to secure the pure fertilization of queen bees, light single hives are indispensable and small nucleus hives are peculiarly well adapted.

These hives, after being supplied with the necessary workers, drones, brood or queen cells, and well provided with honey, are to be placed in a retired or isolated spot, at some distance from the hives in the apiary, even though the bees are brought from a remote locality. They should also be set with the entrances fronting the west, so as to give the bees the advantage of the sun, when they are flying late in the afternoon or in the evening.

In this position the hives are to be left until the young queens are hatched and ready to make their excursions, which in such small colonies is not usually before the sixth day.

On the evening of the fifth day, when the bees have ceased to fly, or early on the morning of the sixth, while all are still at home, the hives are to be closed and carried to a cool dark chamber or cellar, where they are kept till the afternoon of the following day. On the afternoon of that day, if fair, and the sun is shining, at a temperature of 72° or 75° F. in the shade, and the drones of the other colonies have ceased to fly, the hives are to be brought out and replaced on their former stands, with the entrances open. The bees must then be fed with diluted honey made lukewarm. They, as well as the drones, will immediately begin to fly very actively, and the queens, leaving in these circumstances, will meet only such drones as have been selected.

If the weather be cool or cloudy, the queens will not leave, and the hives must be closed when the bees become settled, and again carried to the dark chamber or cellar. In unfavorable states of the weather, it may happen that ten or twelve days may elapse before fertilization is effected, and the hives may have to be carried out and in repeatedly; but the bees need not be fed on each occasion, unless there be a prospect that the weather will allow them to fly briskly.

When several nuclei have been prepared and stocked with workers for this purpose, care must be taken to provide them with an adequate number of drones; though, when operating to this extent, it is advisable to arrange a separate nucleus containing drones in larger number, and a drone comb with maturing brood.

These hives or nuclei having been so placed that they can readily be supervised, the bee-keeper who employs this process must be careful to watch them closely when the bees are permitted to fly, and observe whether the queen issues. He may frequently see a queen come out, fly about in front of the hive a minute or two, and then retire, returning in a short time to repeat the manœuvre. If any fail to come out a second time, he may feel confident that she will make her wedding flight next day, if the weather prove favorable, and must not neglect to bring out the hive or nucleus containing that queen—continuing to do so till satisfied that fertilization has been effected. If the queen is not seen returning with evidence of impregnation, the hive may be opened in the evening before removing it from the stand, and a more careful examination made at leisure. An inexperienced or inexpert operator, who doubts his judgment in the matter, continues the experiment daily, till he finds eggs or brood in the worker cells.

The best season for employing this process is the spring, after first swarms have left, and before second swarms make their appearance. If second swarms have issued from some neighboring colony, the operator may oft be disappointed, as those late-flying drones may interfere with and defeat his experiments.

The hives and nuclei used must of course be properly ventilated, that the bees may not suffer or be kept in a state of excitement while in confinement. Means should also be provided for feeding the bees when necessary without opening the hive, otherwise the queen may become alarmed and deterred from coming out when the workers are flying.

I did not originally regard or treat this process as a secret; but communicated it to many of my friends and visitors in free and familiar conversation. But after the effort was made to procure compensation to Mr. Köhler for promulgating his method, (which I did not doubt was essentially like mine), I ceased to speak of it, till Lieutenant Wedell, who was acquainted with it, announced the fact in the Bee Journal, and obtained for me some pecuniary remuneration likewise, for which I feel duly grateful.

It now appears that several other apiarians have for some time been using substantially the same method. Kruger.

Edward's Spring, June 15, 1868.

* * *

Death from the Sting of a Bee.

Mr. Osmond Patton, of Westmoreland, Oneida county, (N. Y.,) died on Sunday, June 21st, from the effects of being stung by a bee. The puncture was made over the left eye, and in about fifteen minutes afterwards Mr. Patton felt faint, and finally died in about three hours.

It is to be regretted that a more full account of this occurence has not been furnished. What were the circumstances under which Mr. P. was stung? Was he much excited or fatigued at the time? What was the general state of his health previously; and of his physical condition when stung?

* * *

"Nothing can be well done, that is done out of season," is a truth which a novice in bee-keeping should impress on his memory, and avoid illustrating in his practice.

* * *

He that licks honey from thorns, pays too dear for it.

[For the American Bee Journal.]

A Criticism.

BY W. W. HIPOLITE, M. D.

In the Bee Journal for July, B. F. Babcock calls attention to an extract from a work lately written by Mrs. Agassiz and her husband, the Professor, advancing a somewhat novel idea regarding the mathematics of the honey bee, as exhibited in the construction of its comb. It claims that,

> "The bees stand as close as they can together in "their hive for economy of space; and each one deposits "his wax around him, his own form and size being the "mould for the cells, the regularity of which, when "completed, excites so much wonder and admiration. "The mathematical secret of the bee is to be found in his "structure, not in his instinct."

We know not what the Professor's advantages have been in securing data on which to found his hypothesis; and we feel in no small degree timid in making an assault on the doctrines promulgated by him. Notwithstanding, however, his position and senile dignity, we claim a voice, because our knowledge has been derived from personal observation; and justice to ourself, and to our bee-keeping friends, prompts us to place on record our dissent from such erroneous views. In order to entitle this idea to a place among scientific discoveries, two things are certainly necessary. One of these is that it must be *new;* and the other is that it must be *true.* The first of these qualities we readily admit it to possess, namely, that it is *new;* but neither, alone, will constitute a discovery; both are required.

A story is told of a young clergyman who inquired of an older one, who had been present at the delivery of one of the young man's discourses, what he thought of his production. The old man said, "There were many things in the discourse which were new, and many things that were true." The young man, pleased with the remark, thanked very warmly his senior for his good opinion; "but," added the old man, "the new was not true, and the true was not new." This altered the aspect of the criticism, and gave the young brother a "realizing sense" of the importance of both originality and truth to constitute high merit.

A scientific discovery, as we understand it, is the development and presentation of a new fact or new principle; and the fact or principle must be capable of clear proof, of demonstration, or it can only be regarded as an hypothesis—a mere conjecture, more or less plausible according to the reasonableness of the case. Not only must it be most clearly new, but also demonstrably true. If that which claims to be a discovery be neither new nor true, it will be the farthest possible from what it claims to be. His hypothesis requires something approaching demonstration, in order to place it in the category of ascertained facts—to make it a discovery. But, to our apprehension, he has offered nothing of the kind, and nothing worthy the dignified name of discovery has been made.

All who have studied the writings of the greatest of philosophers—Lord Bacon—must know that there are two especial sources to which he refers men for real increase of knowledge, namely, to observation and experiment; which he insists are but questionings of nature in respect of specific matters. To cultivate the faculty of observation must then be the first duty of those who would excel in any scientific pursuit. To such an one it may be said that the habit of correct observation is that mode of learning, which above all others, he should most diligently cultivate; remembering that observation does not consist in the mere habitual sight of objects—in a kind of vague looking on, so to speak—but in the power of comparing the known with the unknown; of contrasting the similar and dissimilar; in justly appreciating the connection between cause and effect; and in estimating, at their correct value, established facts.

As regards the construction of the cells of the honey comb, it is quite evident the Professor's knowledge has not been derived from correct personal observation; and we must conclude that he has looked at the subject through a distorted medium. It is to be exceedingly regretted that a man of such calibre, and of such world-wide reputation as a naturalist and author, should be so easily thrown off his balance. We have no disposition to disparage the merits of the work, or of the justly celebrated author from whose pen its contents, in part, emanated; but must confess ourself surprised that any one should so confound known facts and the scientific principles which are deduced therefrom—to see such ignorance and its consequences pervade a book, where we ought reasonably to look for the most intelligent representation.

Though we rightly hold him responsible for the appearance of this hypothesis, inasmuch as he is announced as one of the authors of the work from which the extract was taken, yet it is quite possible the idea first originated with Mrs. Agassiz, and arose from a laudable desire to see the *lordly drones* abandon their lazy habits, and engage in some useful occupation—for it naturally follows that when drone comb was to be built, *they* would have it to build. But I opine some of our bee-keeping friends would enter a protest, when some of their choice queens were thus degraded. If taken at a time when a colony is preparing to throw off a prime swarm, and whose queen is engaged to the utmost in depositing eggs that brood may be raised, they would dislike to believe that, when a number of queen cells were to be built, she would cease laying and engage for days at a time in building them. Perhaps, however, when both kinds of labor are required, two or more queens are furnished the colony—one to lay the eggs, and the others to build queen cells. As we have been left in the dark on this point, we would suggest that it might be well for bee-keepers to be on the lookout, and when they again find more than one queen domiciled in a hive, to carefully note what is the seeming occupation of each. It now becomes doubly clear why a colony should never be left queenless—if otherwise, how could they ever hope to raise queen cells?

There are a number of other points deserving of attention, but the length of this communication forbids that we should name them here. Before closing, however, we would, in view of Professor Agassiz's hypothesis, caution purchasers against selecting colonies whose combs have many irregular cells—such as are often seen where worker merges into drone comb—for such cells, we can readily suppose, might indicate that the colony contained bees of an *irregular shape;* for it is claimed that each bee "deposits his wax around him, his own form and size being the mould for the cells." Such irregular shaped bees would be unsightly, if nothing worse; and might seriously interfere with the due performance of a "function, as inevitable in its action as digestion or respiration."

JONES' GROVE, WIS.

Queen Elizabeth's Mead.

Take of Sweetbriar leaves and thyme each one bushel, rosemary leaves half a bushel, and bay leaves one peck. Seethe these ingredients in a kettle of water containing probably noless than one hundred and twenty gallons, boilting for half an hour. Pour the whole into a vat or sufficiently large wooden vessel, and when cooled to a proper temperature (about 75° F.) strain it. Add to every six gallons of strained liquor one gallon of fine honey, and work the mixture together for half an hour. Repeat the stirring occasionally for two days, then boil the liquor again, skim it till it becomes clear, and return it to the vat to cool. When reduced to a proper temperature (about 80° F.) pour it into a cask from which fresh ale or beer has just been emptied, work it for three days, and then tun it.

When fit to be stopped down, tie up a bag of beaten cloves and mace (about half an ounce of each) and suspend it in the liquor from the bunghole. When it has stood half a year it will be fit for use.

To Make Mead.

Take three gallons of water of blood warmth, three half-pints of molasses, two-thirds of a table spoonful of ginger, one-third of a table spoonful of allspice, and mix well together with a gill of yeast; let it stand over night, and bottle next morning. It will be in a good condition to drink in twenty-four hours, and is a palatable, wholesome beverage.

A piece of the bark of an oak tree that has been struck by lightning, is selected by some bee-keepers and nailed or fastened to a tree near the apiary, to attract and arrest issuing swarms, and induce them to cluster where they can easily be secured and hived.—OVERBECK.

In Western Pennsylvania, it is a popular belief that bees will invariably sting red-haired persons as soon as they approach the hive.

[For the American Bee Journal.]

The Varronian Theory.

Association begets thought, and thought sharpens intellect, and leads on by almost imperceptible degrees to the discovery or development of some science or art. Thus it is that such a periodical as the Bee Journal becomes the representative of our thinking heads; and often a hint from one leads another on to a standpoint far in advance of what would have been attained unaided, Facts are brought to light; error is exposed; and theory gives way to practice. Hence discussions are valuable alike to all, and TRUTH sooner or later triumphs; the sharper the conflict the sooner it is over, and the brighter she shines. One fact is worth all the speculative theories in the world. Theories conflict; facts never do.

By this rule, I propose to try the Varronian theory, with the single purpose of arriving at the truth; and as there are several points which I desire to notice, and not wishing to misrepresent the author, I will give his own language, and follow with my remarks.

"Abnormities in the animal kingdom originate in a forced compliance with the normal decree of Providence." Say, rather, in a failure to comply with the normal decree, or to the absence of some of the elements essential to the formation of a normal organism. "Appropriate food maladministered, and inappropriate food well administered to the young of any animal, constitutes a forced compliance with the normal decree of Providence." Maladministration of proper food, and inappropriate food well administered constitute a clear case of *non*-"compliance with the normal decree of Providence." Providence either decreed that inappropriate food should be the normal food, or else He did not. If He did, then giving it is "no forced compliance." If He did not, then it is no compliance at all, but a clear case of non-compliance or violation of normal decrees.

"In the hive all individuality not reared directly from the egg, *ab initio* as such, implies forced or unnatural compliance." Compliance with what? Unnatural compliance with the law of nature! This would be nonsense. And if nature be thus kicked out of doors, what does rule the economy of the hive? "Fertile queens reared out of season, drone-laying queens, and fertile workers, are abnormalties." We beg to know what particular time is to be considered out of season. In this latitude bees swarm all the way from May to September, and I had thought there was scarcely a day the year around that bees were not swarming somewhere in the world, and of course rearing queens. "It is therefore evident that the greater portion of this substance [royal jelly] is an animal secretion, and being mixed with gastric juice and pepsin, &c." I have yet to learn that royal jelly has ever been discovered in the stomach of workers; much less that it has been found to contain "gastric juice and pepsin;" and should like to have the evidence of it. "A minute quantity of sugar is discoverable in it, which transforming from starch or pollen, and having as yet not had time to completely change into lactic acid, imparts, no doubt, to this royal food its pungent flavor." But has starch or pollen been found in said royal jelly? If starch is *there* lactic acid may doubtless also be had, provided decomposition goes far enough to decompose the starch. I feel very much disposed, however, to doubt the presence of starch, or pollen either, since the usual chemical tests fail to detect them. (See Analysis of Royal Jelly, Bee Journal, vol. I, page 36). Albumen or fibrin are present, but we do not get lactic acid from them. Nor do we get it from pollen; but we would probably get ammonia, carbonic acid, and sulphuretted hydrogen, as a result of decomposition and recomposition of the carbonaceous and nitrogenous constituents of this jelly. "From the presence of fatty matter in this royal peptone, I infer that worker eggs play an important role in it, for it is well known that the yolk of eggs contains not only oil in considerable quantity, but also spermatozoids." This inference, based on certain known facts in regard to eggs in general, will apply when it has been proven that bees' eggs have these requisites. I presume the oil and spermatozoids can be found; but even then the conclusion does not follow. "I believe, therefore, that when the egg from which a queen is to be produced is placed into the royal cell, the workers dose the incipient queen expectant *ab initio*, with worker eggs, prepared by them by simple insalivation, and thus not only furnish it with its appropriate pabulum, but also impregnate this egg, or larva, upon its immediate exclusion from this egg, with the spermatozoids present in these worker eggs." This strikes me as one of the most remarkable sentences I remember ever to have read in my life. If I understand the meaning, it is this:—the eggs and spermatozoids fed to this queen expectant, in this royal jelly, are to effect a kind of double impregnation. That is, they are to impregnate an egg that is already impregnated, and that too by way of the alimentary canal. On second thought, this enables me to account for the predominance of the swine element in some of our western people—they (get themselves with pig, that is) impregnate themselves eating pork! Happy thought! But that this is no unfair construction of the meaning of the passage, appears from the following—which fully explains the above:—"If Dr. Dönhoff, by artificial impregnation, has succeeded in rearing a worker larva from a drone egg, then my allegation that the workers, by means of royal peptone with its aliquot portion of worker eggs containing spermatozoids, *can effect additional impregnation upon the impregnated egg in the royal cell.*" The italics are my own. Now I would like to be informed how many of these eggs have to be fed to the expectant queen to secure enough spermatozoids to impregnate an egg already impregnated? Since each one of these eggs would develop a worker, and as workers are the "mud sills" of the colony, and since so many are fed to each queen, perhaps this may help to explain the high price at which the latter are sold! Query, would it not enable producers to sell queens at a reduced price, if they could induce bees to use only drone eggs? What stupid creatures they must be, thus to destroy hundreds of useful workers to produce one queen, when a few drone eggs might answer; and as to spermatozoids, they could worry a few drones and get all they need. (See Kirby, in BEE JOURNAL, vol. 1.)

But this theory is not unsupported. We are assured that Huber, Dzierzon, and Berlepsch agree in the same story up to a certain point, and then only differ in the details. Thus, "I differ in my story only in this with them, that I attribute the fertility of fertile workers to their pabulum of worker eggs and spermatozoids *ab initio*, whilst they attribute it to royal jelly." That is, they speak of it as a whole, without regard to its composition, while the theory assumes some special supposed fact included within the whole. They call it royal jelly; but here it is "worker eggs and spermatozoids." "They commit the egregious error of attributing to the alimentary functions of the bee that which, according to reason, philosophy, and anatomical research elsewhere, is attributable only to the organs of procreation, whether perfectly or imperfectly developed." Now, if the author has not committed the same "egregious error," I confess I am ignorant of the meaning of language. He doses them on "eggs and spermatozoids;" they on royal jelly. But if worker eggs are essential to this, I should be under obligations to be informed in what particular a queen produced as follows fails to be perfect. A sheet of comb containing larvæ from two to four days old, is given to a nucleus, and from these they produce queens, there being no egg in the hive.

In conclusion, I must be allowed to say that I fail to discover any new theory here, but simply an attempt to explain some other person's, in which attempt is manifested a great amount of ingenuity, based upon inferences and speculations, without the necessary facts to sustain it.

H. C. BARNARD, M. D.

CHARLESTON, ILL.

Bee Sting.

An Andover correspondent of the *Oxford Democrat* says that Mr. John Hall was stung by a bee, last Saturday, which caused him such pain that it set him into spasms. In about fifteen minutes Dr. Wall was called, and expressed fears that he would die. It had the same effect that the bite of a rattlesnake would have caused—but he is out of danger now.—*Maine Farmer, July* 25.

* * *

At the Paris Exposition in 1867, samples of honey produced by the native bees of Cuba, were exhibited in glass jars. The upper portion was yellowish or amber-colored, while the lower portion was brownish. It had a very sweet but rather cloying taste.

* * *

Daub yourself with honey, and you will have plenty of flies.

[For the American Bee Journal.]

Open or closed top Frames. Both sides of the question.

We all rather like to have others think as we do. It is a kind of compliment to our judgment, which some great men are not indifferent to.

When we have once adopted a theory or process, we naturally defend our judgment by defending the object of our adoption; and to a greater or less extent, all are unconsciously inclined to become champions of their own opinions. The contests that follow are sometimes carried further than the facts will justify. It is an easy matter to work ourselves up to a point where zeal takes the judgment prisoner; and exaggeration then seems to us the most powerful argument.

These reflections are suggested by reading some of the late articles on bee hives—wherein much that is valuable has been brought out, along with *some little* bad feeling and a great deal of *buncom.*

Keep cool, friends! the dog-days are upon us. Be earnest and courteous, but do not claim more than is *safe.* There are some good points in every hive, and none are perfect.

Now, I think Mr. See, in the June number of the BEE JOURNAL, claims more for the Langstroth hive than the inventor does, and more than it will be found entitled to, on trial. On page 171, Mr. See says, "to remove the frames, commence with the *third* one and push it against the fourth, and then shove the second against the third, and you can take out the first or side frame; and if you now wish to examine the rest, you have the room to slip them on the rabbets and can do so. And when you want to close the hive, *if* the first frame taken out will fit the place of the last comb moved, put it in; but if not, you must *slide them all back to the place they originally occupied.*"

Now, every practical apiarian, knows that the above is often necessary, and *not more* so with a closed top frame hive, than with an *open* one. Mr. See further says that it is necessary to take *all the frames* out of a closed top frame hive, till you come to the one you wish to remove. This may be necessary with *any* frame, but it is not any more so in a closed top hive, than in any other. When the tops of the frames touch, the side of the hive is made movable, so that the outside frame comb can be removed easily. The hive can now be closed or even left open, and the rest of the frames moved about or removed, as easily as in any other hive; and that too when only one frame has been taken out. The Langstroth hive requires *as much;* the closed top hive *no more.* Now I find there are times when almost any one would be glad to be able to remove the sides of a Langstroth hive, and thereby get room to manipulate the frames. My bees cram their hives so full of honey, with a projection here and a depression there, that I often find it very difficult to remove *any one* comb, even when I have crowded *all the rest* so close together that they are in danger of being crushed; and in these vexatious cases I have felt like opening the sides with an axe, for with the very best I could do, I would often crush the combs, kill the bees, and have the honey streaming down on the bottom board, which speedily brought the robbers by scores to annoy me. Whereas, if my hive had been side opening, I could easily have removed a comb without so much work.

I am not a defender of *any* hive; have but a single side-opening hive in my apiary, and have no interest in any such. But while I use the Langstroth hive, I *know* it is not altogether perfect; nor do I condemn *all* others as altogether bad. Love of justice is my only object in writing.

While I am on this subject, I would like to ask bee-men everywhere, whether they have observed any difference in the honey-producing qualities of different hives. Will not bees take possession of honey boxes much sooner that rest on the top of the frames, than of those separated by an air space and honey board? My observations lead me to think they will; and where *honey* is our object, *this* is an important question.

One of my bee-keeping friends uses the Flander's hive, and he uniformly gets honey earlier than I do, notwithstanding his are black bees, and mine Italians; and this too when wintered the same, and on the same range.

* * *

[For the American Bee Journal.]

Closed or open top Frames.

Though the writer of the article of page 234, June number of the Bee Journal, may be well "informed in regard to the first principles of practical bee-culture," yet it is very evident, from the slashing manner in which he goes into the comb of every closed top frame he handles, that he has never used the American or any other good hive with fixed frames. I believe that if he will try the American or Champion hive one season, he will alter his opinion and the "objectionable features" that exist only in the imagination, will vanish. I have used the American two seasons, and as far as my experience goes, there is much less irregularity of comb in it than in the Langstroth frames.

The main argument of Mr. See and others against fixed frames is based on the idea that, in order to get out the last frame it is necessary to remove every other frame from the hive. By removing two frames and inserting the blade of a knife between any two of the frames, one or more may be moved sideways, without injuring the comb or the bees, and the desired frame can then be taken out, and the evils of his supposable cases disappear. And if he will use the hives, as a sensible man ought to do, he will find that instead of being able to manage only twelve colonies in the same time that he could manage forty in the Langstroth hives, he will be able to manage about thirty-nine colonies and a half in the same time, and not kill a bee except through carelessness.

J. H. Smith.

Fremont Centre, Ills.

[For the American Bee Journal.

The Bee Plants.

In early spring I sent to Mr. Hubbard, of New Hampshire, and obtained a paper of the seeds of the *Polanisia purpurea*, and to Mr. Terry, of Crescent City, for a paper of the seeds of the American bee plant, (called by some *Cleome integrifolia*), and I found, to all appearance, that the seeds of the two lots were alike. And now that they are grown, I find the plants and bloom are alike in every respect. I conclude therefore that they are the same, and would notify the readers of the Journal of the fact, so that they need send to one place only for seed, thus saving themselves the disappointment it would occasion from not having *two new* bee plants.

I bought of R. K. Bliss & Co. a paper of seeds to sow in my flower garden, two years ago, called the *Cyanus*, and I find it will keep blooming for two or three months. If sowed in May, it will come into bloom about the middle of July, and continue until in September. It is a great favorite with the bees. They work busily on it from morning till night. It is an annual, of easy cultivation, and may be so arranged as to bloom when most needed for bee pasturage. It is a profuse bloomer. The seed must, of course, be sown annually.

I bought another paper of seeds of the same firm, called the *Chelone barbata*, a Mexican plant. Being a perennial, it does not bloom the season it is sown, but blooms profusely the second. The bees work constantly in these flowers, having to crawl into them to obtain the honey, which appears to be in large amounts. The flowers are Pentstemon-like, and showy. The plant grows about four feet high, does not bloom quite as long as the Cyanus, and is in blossom during the white clover season. It is quite ornamental for the flower garden.

J. Davis.

Charleston, Ills.

[For the American Bee Journal]

Swarming.

I believe it is the generally received opinion that a hive must have a queen cell started, with larva therein, previous to swarming; and that a prime swarm will not come out until one cell is sealed. (See Quinby, and others).

I have lately had hives swarm when an after examination revealed the fact that there were but the rudiments of cells, such as are found in most hives at any time during the swarming season: and I could not discover larvæ in any of them.

Now is this an unusual case, or have others met with such exceptions to the general rule?

Lucius C. Francis.

Springfield, Ill.

A mixture of laurel oil, oil of turpentine, and clarified honey, is used in some parts of France for the cure of frost-bitten limbs.

[For the American Bee Journal.]

Young Queen issuing with First Swarm.

As I clip the wings of all my young queens, I was much surprised, on returning home one evening this spring, to find that a hybrid stock had cast a strong swarm, which had clustered and had been hived without any trouble, evidently having a queen that could fly perfectly.

The swarm had been put in a swarming box, and on shaking them out into a hive, I found a black virgin queen, very small and active. I then opened the parent hive, and found a queen cell with the cap cut entirely off, showing that the queen had left it some hours before ; and on the same comb I saw the old Italian queen, with her wings clipped.

I have never before heard of an instance of a first swarm leaving with a young queen ; and suppose the old queen must have attempted to go, and finding, after the bees were on the wing, that she was unable to fly, returned to the hive ; the young queen having in the meantime hatched out, left with the swarm.

D. M. Worthington.

Elkridge, Mo., July 29, 1868.

[For the American Bee Journal.]

Last week I opened a nucleus in which I had put two Italian queen cells so closely joined as not to be safely separated. I found the queens both hatched, and on the same card ; and while one was trying to hide herself, she attempted to crawl under the other. And, further, while one was finely marked, the other was as black as the blackest. The swarm that the brood was taken from is as handsome a swarm of Italians as there probably is in this State.

L. C. Fairbanks.

Appleton, Wis.

[For the American Bee Journal.]

Honey Substitute Wanted.

I would like to inquire through the Journal what is the best substitute for honey to feed bees, to carry them through the winter; because if we do not have more rain soon the bees will not get honey enough to winter; they have not gathered as much honey as they consumed, only from the 20th of June to about the 5th of July.

Although the white clover was in full bloom from the 1st of June, the bees did not work much on it before the 20th ; and the weather is so dry now that buckwheat does not yield any honey. But the sweet or Melilot clover has yielded honey through all the dry weather. Unfortunately, I have only about a rod square of it ; but on that the bees work from early morn until late in the evening.

R. R. Murphy.

Fulton, Ills.

The worker bees would all rather die of starvation, than let their queen suffer want.

[For the American Bee Journal.]

Another Battle of Bees.

The Cause in one Instance, and the Remedy used for the same.

On my arrival home in a time of drouth, and scarcity of forage for bees, I found the doors of the dwelling house closed, and no travelling of man or beast near the apiary. Fifty hives out of three hundred were having a battle, with more hives joining in every minute, of those nearest the scene of action, though setting four feet apart, four inches high.

The cause of the war was, a swarm had starved out and deserted its hive, and attempted to enter another. The odor of the poison from the stinging assailants and the assailed, could be smelled by other hives standing near. The bees of these pitched in for war, and were fast getting the whole apiary maddened, when I arrived at the scene of action. It took but a few moments to put on a bee-hat and gloves, which are seldom needed except in extreme cases like this. Then using smoke of rotten wood for all the hives at war, I again discarded hat and gloves and inserted the different mints, burnt coffee, onions, whiskey, tobacco, burnt rags, or anything that would change the scent of the hives of robbers. If by any mishap any bees are crushed, or they leave any poison on the hive or on the person or clothes, blow some smoke over the places, as it will disguise the smell of the sting. In case of an attack on man or beast, use smoke, the stronger the better—such as that of burning tar, feathers, rags, or tobacco. For the stings, use strong spirituous liquor, internally and externally. Ammonia is good as a wash. Water is the base of the solvents, and is therefore good.

J. M. Marvin.

St. Charles, Ills.

[For the American Bee Journal.]

The Harrison Bee-Feeder.

On the 25th of of July, I received from Mr. Edward Harrison, a sample of his bee-feeders, with the request to test them with mine. After testing and taking all things into consideration, I cannot say which is the best.

As a feeder for a starving colony, I do not believe one better than the other.

But as a feeder to stimulate a colony in the spring or summer—one having plenty of stores in the main hive—his may posssibly be the best.

As a combined feeder and waterer, the one described by me, in the July number of the American Bee Journal, I prefer.

In every case those having bees, and wishing to feed or stimulate, will find the Harrison Bee-Feeder a good one, and as a feeder all that can be desired. Which is really the best, I leave to others and time to decide.

John M. Price.

Buffalo Grove, Iowa.

[For the American Bee Journal]

Cheap Bee-Feeder.

Let me tell the readers of the Bee Journal what kind of bee-feeder I use, and how made.

Take a common gill glass, or a half-pint tumbler, fill it with honey or sugar syrup, draw over it a piece of coarse muslin, and secure it by a small india rubber band. Then open one of the holes in the honey-board, and invert the glass or tumbler over it. The bees will suck out its contents at their leisure. Being air-tight the honey or syrup will not pass down faster than the bees require. When used on a nucleus hive, invert a tin cup or small earthen pot over it, to keep away flies, wasps, and bees.

A larger tumbler may be used when we wish to give the bees a larger supply of food, to serve in case of absence.

Such a feeder costs only a trifle, and is within the reach of all. J. Goden.

Belle Plain, Va.

[For the American Bee Journal.]

Bee-Feeders.

A good bee-feeder can be made of any bottle, of any size from two ounces to two pounds.

But one having a short wide neck and a short dumpy body, with a square or nearly square shoulder is the best. To use, fill up full with honey, sugar syrup, or water ; tie a piece of fine cotton cloth over the mouth, and place the neck of the bottle in a hole over the cluster of bees.

But one that I prefer is made of a glass self-sealing fruit jar—of the Hero, or any other self-sealing screw-top pattern. In the centre of the top punch fifteen to twenty holes. Over the holes solder a piece of fine perforated tin, such as is used in strainers. Around the edge of the top, outside, have a rim of tin half an inch wide soldered, to keep the feeder from touching the honey-board. To use, fill up with honey, sugar syrup, or water; screw on the top, and place it over a hole in the honey-board over the cluster of bees.

Liquid honey or sweetened water, to stimulate bees in the spring or summer, can be given diluted, without any danger of its turning into vinegar in the hottest weather ; and a month or two's supply of water can be given at once. It being air-tight, the water will always be good ; and those who water their bees in the winter, will find this a useful contrivance.

Bees short of supplies in winter feed from the above as quietly, and with no more excitement, than if the supply came in the natural way.

John M. Price.

Buffalo Grove, Iowa.

A large number of straw hives is annually made in France, and exported to Poland and Southern Russia, where there seems to be a regular demand for them.

[For the American Bee Journal.]

A Convenient Hive.

Fellow Bee-Keepers :—I have been taking notice of your welcome and instructive expatiations in the Journal, and though I think I am benefitted and also try to experiment and make discoveries at home, I am at the same time aware that I have yet much to learn. Still I am always pleased to find others speak their sentiments fully through the Journal.

As I promised in my last to describe a convenient hive, I will now give a brief description of one. Then each may make one for himself, and judge of its merits on actual trial. I, of course, would say it is the best in use, but forbear assuming that ground at this time.

I make a right-angled triangular box, with the entrance at the right-angled or square corner. The movable side, or honey board, is the long side, from which the frames are taken out. The interior is so constructed that the hive can be placed with either of the long corners up in winter, and of course have the main quantity of honey above them. In summer, or when honey boxes are used, it can be turned with the entrance straight down. Then the honey-board will be in a horizontal position, or level. But while comb building is going on, it must have one corner up ; then the bees will always build straight in the frame. At least out of thirty-two cases which I have examined, I have not found one instance in which the combs were not straight, so that every one could be taken out separately, without any cutting or binding. Perhaps the reason of their building straight is because the space between the base of the frames is narrow at the upper angle.

Now as this hive can be made for half the money that most others can be made for, I only ask each to make one for himself, and then judge of its merits. If you cannot make them from this description, send for the specifications accompanied by drawings, and when you have experimented with the hive, report through the Bee Journal. S. B. Replogle.

Martinsburg, Pa.

Brooklin, Canada West.

We are having the best honey season we have ever known in Canada. Swarms issued as early as the 23d of May, which is two or three weeks earlier than usual. Interest in bee-keeping is steadily increasing—the result of more extended knowledge of bee-culture.

J. H. Thomas.

Millroy, Mifflin Co., Pa.

The bees are doing well here this summer, white clover being very abundant. Perhaps I may give you some results after awhile.

J. W. White.

Pocahontas, M.

Bees were very forward here this spring They commenced swarming in April.

It has been about an average year for honey.

J. C. Wallace.

THE AMERICAN BEE JOURNAL.

WASHINGTON, SEPTEMBER, 1868.

☞ THE AMERICAN BEE JOURNAL is now published monthly, in the City of Washington, (D. C.,) at $2 per annum in advance. All communications should be addressed to the Editor, at that place.

☞In our last number we could give only a mere sketch of Krüger's method of securing pure fertilization of queens. Having since received a detailed statement of his process, as employed by himself, we present a translation of it in the present number. It is substantially the same as that of Mr. Köhler.

☞The method of providing a supply of reserve queens, given in the present number of the BEE JOURNAL, from the German of Hübler, we need scarcely remind practical apiarians, can be advantageously employed in combination with the process of securing pure fertilization of queens. The business of Italianizing an apiary may thus be greatly facilitated.

While giving place, in the present number, to an article on "the Varronian Theory," we do not design to re-open discussion of that topic. When the late Professor sent us the first of his articles, he requested us to withhold comment or criticism till he "got through;" but he died before that point had seemingly been reached. We could not regard his theory, so far as developed, as at all tenable, though we expressed no opinion at the time, waiting for its full presentation. Afterwards several correspondents noticed some points; but a kind of general rejoinder seemed wanting. The article referred to supplies that pretty fully, and further remark can scarcely be called for.

A correspondent of an agricultural paper, "who has paid much attention to bees," says that "king birds live on king bees." Whether by king bees he means queens or drones, we are permitted to use the Yankee privilege of *guessing*. If the former, the poor bird must at all seasons be content with "short commons;" and if the latter, though he may "fare sumptuously every day" for several months annually, he must probably "fill his belly with the east wind" during the remainder of the year.

"An old bee-keeper" thinks the common box hive as good as the best, as it "has stood the test the longest of any." Is the farmer to regard the flail as good an implement as the threshing machine, since it can plead a course of long prescription for its use? Is the traveller to prefer the pilgrim's staff, the pedler's pack, and the Indian trail, to the railway, the iron horse, and the baggage car, because the latter are modern innovations, while the former have been in common use from time immemorial?

A subscriber requests us to send him another copy of the BEE JOURNAL for July, as a friend has taken his copy from the office and lost it; and he does not wish to miss a number. We comply of course, as we are always ready to do in like cases, when in our power. Allow us, however, to say frankly to his friend, and to any other friend similarly careless, that, in the words of Cowper, he is—

> "Such a friend that one had need
> Be very much his friend, indeed,
> To pardon or to bear it."

ALSIKE CLOVER.—We received last month, and should have noticed in our August number, from Mr. H. M. Thomas, of Brooklin, Canada, a sample of the Alsike clover grown by him last season. The dried stalks are nearly five feet long, retain the leaves and heads well, and look and smell as if they would be excellent fodder for cattle. Judging from Mr. Thomas' remarks about the growth of young clover in his field, from seed dropped in the summer of 1867, it would seem that alsike might be safely sown with rye and timothy early in the fall.

Western bee-keepers complain of a want of pasturage this summer, and fear they will have trouble in wintering their bees. Suggestions for their benefit from persons who have experienced like trouble, would doubtless be acceptable. *Here* the spring was wet and cold, and the summer hot and dry; the locusts, the lindens, and the white clover yielded less honey than usual, and the bees are consequently not so well provided for as heretofore at this season. It is to be hoped that the usual fall pasturage will supply the deficiency.

☞Send us the names of Bee-keepers, with their Post Office address.

☞Bee-keepers in Kentucky are reminded that the KENTUCKY BEE-KEEPERS' CONVENTION wsll meet in Cynthiana, Harrison County, Kentucky, on the *second Tuesday in October next.* Everybody interested in bee-culture are invited to attend.

North-Western Bee-Keepers' Association.

The next meeting of the North-Western Bee-Keepers' Association will be held on the Iowa State Fair Grounds at the time of the State Fair. The Fair will be held near Clinton, from September 29th to October 2d. It is thought best to have two or three sessions during the Fair, or one each day. Notices will be posted up on the grounds giving the hour of meeting, so that all bee-keepers may have a chance to be present. We should be pleased to see a large attendance of bee-keepers, and those interested in bee-culture, at the meeting. We are in hopes of being able to make the sessions both practical and interesting.

R. R. MURPHY, *President.*
M. M. BALDRIGE, *Secretary.*

Bees.

The following is worthy of preservation:

WILMINGTON, VT., Sept. 30, 1867.

MR. E. P. FRENCH. *Dear Sir:*—I thought I would drop you a line and inform you what success I have had with your patent bee hive. I think it the best hive I ever saw. I will give you an account of what I have done in four years. Three years ago I wintered seventeen swarms of bees and got eight hundred pounds of surplus honey. The two years after I cleared $250 each year. Last winter I wintered forty-six swarms, and the past summer I had about one ton of the best of honey, and thirty-three swarms increase, which gives me now seventy-nine swarms of bees. (You can figure the amount of profit yourself.). I have out-stripped everything in this region so far as I can hear.

Yours truly, CLARK HARRIS.

[The above was sent to Mr. French of Bedford, who is interested in breeding fowls and in the management of bees. Mr. F. invented a hive which we are told is of superior arrangement. He has never taken pains to sell rights, though with some improvements he is now making, it will undoubtedly meet with ready sales. Mr. F. has a thorough knowledge of the bee business, and we have reason to believe will contribute an occasional article on the subject to our columns.]

In South Northamptonshire, England, there is said to be a superstition prevalent, that "bees will not thrive in a quarrelsome family." It might be well to encourage faith in this notion, in some other districts also.

[For the American Bee Journal.]

Queens Mating Twice.

I am much pleased with the matter contained in the BEE JOURNAL, and although I do not fully agree with the entire views of some of your contributors, I still believe that the suggestions and discussion of different theories will have a tendency to bring out valuable truth in the end.

I think I can answer the query of H. Nesbitt—"Do queens mate with two drones?" I have a very handsome Italian queen, one generation from a Gray importation and one year old, which I *know* mated with a black drone only, yet the *just hatching* brood shows, some three stripes, some two stripes only, and some with no stripes, but a shade lighter than the black bee.

It may be that a queen will mate with two drones, but I think it very unlikely; and the fact stated above fully covers the point Mr. N. inquires about.

The season in this section has been very unfavorable, as it rained during nearly all the blossoming term, and the crop of clover has been light. All my Italians, however, will give a small surplus, while I shall have to feed most of my black bees.

If R. Bickford wishes to avoid the loss of his bees by dysentery, he will not use a board for darkening the entrance. I tried the experiment with two swarms the past winter, and nearly ruined them in consequence. In bright sunny days I have found it advisable to follow Mr. Langstroth's advice, and give my bees the full entrance, preferring to lose a few by being chilled, than a whole stock by confinement.

I am using the "American hive," and while I have seen many others in use, I cannot see with Mr. Gallup wherein the American is deficient; and can say in its praise that I should suppose that a hive that is "best for beginners to use," would certainly be as good as any for an expert. J. E. POND, JR.

FOXBORO, MASS.

WASPS.—There is a common superstition prevalent in some parts of England and America, that, for "good luck," the first wasp seen in the spring should be killed. The earliest seen wasps are invariably females, and if these are destroyed the multiplification of those insects is measurably checked. Thus this superstitious notion subserves a useful end.

When wasps and hornets abound in the spring, you may expect a good honey season in the fall. The wasps and hornets will attack and puncture ripe sweet fruit, such as peaches and grapes; and the bees will have a busy time gathering up the exposed sweets, that nothing be wasted.—OVERBECK, 1765.

Bees labor well, though unequally, yet have all their stores in common.

[For the American Bee Journal.]

Purity of Italian Bees.

In consequence of my advertisement in the AMERICAN BEE JOURNAL, I have received a great many letters, desiring information relative to Dr. Blumhoff's queens. Let me answer through your estimable JOURNAL.

It is an error to think, as most apiarians do, that the imported queens and their workers are more yellow than those reared here, on the assumption that they are purer.

Either because the first imported queens came from Germany, where the yellow color is in fashion; or because all queen-breeders in this country have always selected their brightest colored queens to breed from; some of the queens and workers reared here are brighter than those imported from the best bee regions in Italy. That is a remarkable change; unfortunately, I cannot say that it is an amelioration.

Indeed, as Messrs. Bidwell Bro's. state in the *American Agriculturist* for January last, in no apiary can you find two hives whose workers are exactly alike. Can we then be proud of our improvement or amelioration, on account of the lighter color of our bees?

The workers of the Blumhoff imported queens are *all alike, in all the hives;* all have the three yellow bands, with black rings larger than ours, bordered with dense gray hairs, and above all an abdomen more tapered, a body more slender, giving them a more graceful shape and a brisker appearance than those of our would-be improved bees.

As it is above all *in the shape of the body of the workers that their superiority over the black bees resides*, we must *adhere especially to the shape of the Italian bees.*

What should we think of a man who, knowing that the Percheron French horse is gray, would claim that all gray horses are Percherons? The comparison is apt, for I have bred impure queens from mothers all of whose worker progeny showed the three yellow stripes; and, again, have reared pure queens from queens whose workers were far less light-colored those of the former.

Till the contrary is shown, I lay down the following principles:

First. The Blumhoff imported bees are purer than the bees reared here, for *all their worker progeny, in all the hives, are alike;* and no criterion is more certain than this.

Second. The shape of the body of the workers, more than their color, ought to point out the queens to breed from.

Third. The color of the queens and drones is too variable for relying on with any certainty.

The shape of the workers is not so difficult to recognize as many imagine. No one, after seeing bees from an imported queen, can mistake, or consider as pure our wide, flattened, three-striped bees.

Starting from these principles we may seek to breed Italian workers with four yellow rings, or even with the abdomen entirely yellow; but should probably produce a degeneration similar to that sometimes observed in the human race, of which albinos are a rude exemplification.

CH. DADANT.

HAMILTON, ILL., August 4, 1868.

[For the American Bee Journal.]

Color of Italian Bees.

I would like to know through the JOURNAL, why it is that the queens reared from imported Italian queens are not as light colored as are those of the third or fourth generation? Also, why the workers are not as light, though they have the three rings? And why the drones are almost as black as the common drones?

R. R. M.

[For the American Bee Journal.]

Purity of Italian Bees and Queens.

It is now commonly maintained in many quarters that the sole evidence of the purity of Italian bees is that they are as gentle as flies; that is, that they will not sting. Have not those who maintain this one-sided proposition, had occasion, this year, to change their mind? I believe that if pure Italian bees are found anywhere in the United States, it is even here in Jefferson. I believe that I have myself more than a hundred colonies unquestionably pure; and, moreover, that Mr. Adam Grimm owns many hundred colonies pure and genuine. Furthermore, I believe that the queens which Mr. Grimm himself imported from Italy are and must be pure. Nevertheless, while thus believing, we know that Italian bees do sting; aye, and at times do so more readily than the black bees. During the swarming season the weather was very hot here; and all the swarms, especially the Italians, were, for swarming bees, very much disposed to sting, so that it was frequently dangerous to undertake to hive them. Accustomed as I am to handling bees, I would not venture to hive any swarm without using a bee-cap for protection. A prime swarm issuing in my absence, from a hive in my home apiary near the dwelling house, and hived by my wife, was so excited and furious that the like had never been witnessed here; and throughout the day, persons in all the neighborhood around were stung. Next morning I transferred that same hive to a transporting hive, and carried it open to my other apiary, two miles and a half distant, without receiving a sting.

Mr. Grimm informed me that his imported bees are as ill tempered as all the rest, if not more so. At other times, indeed, I find the Italian bees so gentle that I can freely open the hives and perform the required operations without any protection whatever. Still on cold days or cool mornings, it behoves us to be careful in removing the honey-board or lifting the frames not to cause any sudden jar or noise. Nevertheless, with proper careful handling, I would at any time rather open and thoroughly examine three hives of pure Italians than one of hybrid or black bees. Hence when any one hereafter claims gentleness as evidence of purity, let him not forget to remember that very much depends on the operator himself; and that bees do not manifest the same ill temper towards all individuals who approach them, just as the poison of their stings does not affect all persons alike—otherwise our queen dealers may get into undeserved disrepute.

W. Wolff.

Jefferson, Wis.

[For the American Bee Journal.]

Non-Swarming.

Mr. Editor: — The swarming season has come (and nearly gone), and brought with it some disappointment, perhaps, in some cases. I have no fault to find. My bees have done as well as they ever did, so far as swarming is concerned. But there is one difficulty we have here, in this locality at least, in Iowa. Our bees prosper well in the spring, and seem to get plenty of pollen and honey from the willow and fruit blossoms. They raise brood rapidly; and by the last of May, good stocks are ready to swarm. So says Mrs. Tupper in the Agricultural Report; but I cannot agree with her in regard to the reason she assigns why they do not then swarm. I understand her to say that a few cold days prevents them. It is not so with my bees. They commenced to swarm the last week in May, and continued till the second week in June. Then they began to kill off their drones, and all further thought of swarming seemed to be given up. In fact my bees were starving all through June. All they seemed to get, or nearly all, was from the white clover, of which there is but little here. At the last of May, so far as I examined, the hives were very populous and the combs full of brood; and on the 8th of July, when the basswood commenced to blossom, their working force was much smaller, and the hives did not contain half the amount of brood. The swarms that I got, I had hard work to prevail on them to stay with me, and had actually to resort to feeding.

This is not so only one season; but it is the history of every season. Well, I wish some of your correspondents would tell us how we shall obviate this difficulty. Shall we feed during this interval of scarcity? Or can we plant or sow something that will begin to yield honey about the 1st of June? If so, taking ten stocks as a basis, what quantity of ground will be sufficient?

E. Shulze.

Brownsville, Iowa.

In Tusser's "*Five Hundred Points of Husbandry*," under the month of May, are these lines:

"Take heed for thy bees that are ready to
swarme;
The losse thereof now, is a crown's worth of
harme."

[For the American Bee Journal.]

Honey-Emptying Machine.

As there have been many inquiries about our honey machine, we give directions for making them, as follows:

Get a tinsmith to make you a tin can two feet high and eighteen inches across, straight sides. This will hold frames from both the American and the Langstroth hives. Get a straight piece of three-quarter inch iron rod for shaft; and fix or have soldered in the centre of the bottom, inside, a piece of iron with a hole drilled partly through, for bottom bearing. For top bearing get a piece of wood two inches thick and about three inches wide in the middle, and curving out broader at each end, say to five inches, and cut so as to slip closely over the edge of the can, to steady it. Our propelling power is the crank and gearing of a malleable iron apple-pearer; but we have thought that a crank placed directly on top of the shaft would give sufficient speed, as we have to turn quite slowly, especially in warm weather. Can Mr. Langstroth tell us anything about that? Well, our machine is now all done, except the frame to hold the combs, which we make in this wise:

We cut two pieces of wire cloth a little larger both ways than our comb frames. (Of course the Langstroth frames are turned so as to stand the longest way up and down). We then took galvanized white wire clothes line, bent all around the wire cloth near the edge, and soldered it. Then soldered a wire to each corner and around the shaft, leaving space enough between the frames so that these would clear the can in revolving, and two wire braces to each frame from the lower corners to near the top of the shaft. This completed it. It is simply a square wire frame, with wire cloth on two sides and shaft in the centre.

Solder all wires and braces on the outside of the wire cloth, so as to leave a smooth level wire cloth for the combs to rest against; and arrange the braces so as not to be in the way of handling the frames rapidly.

With our lady assistant we emptied, weighed and sealed up, 285 pounds of honey, in about three-fourths of a day.

We have never yet been favored with any buckwheat honey, but should really like to try our machine on it.

We should have remarked that we pour our honey into a large jar with a strainer attached, and it is then run out by a faucet into the self-sealing pint jars, as they stand on a pair of scales; so that it is quickly and accurately weighed.

The experience of others with the comb-emptying machines, would be considered a favor by

Novice.

Bread and honey was the chief food of the Pythagoreans, according to the statement of Aristoxenus, who says that those who ate this for breakfast were free from disease all their lives.

[For the American Bee Journal.]

The Honey-Comb Emptying Machine.

I made trial to-day of my just finished machine for emptying honey-combs, without injuring for further use; and find that, when properly employed, it fully answers the purpose intended. I confidently expect, by means of this machine, to increase my honey crop threefold next year. It will be found most advantageous to extract the honey just when the bees begin to seal it up in the cells; though the capping can be readily removed by using a suitable thin-bladed knife. It is best also to remove the capping, at the start, from both sides of the comb. While the combs are yet full and heavy, the motion should not be very rapid; and they had better be turned at short intervals, till the honey is partially discharged, and the weight thus diminished. I have emptied, by the machine, both old combs and new, to my entire satisfation, and without breaking or damaging either.

I understand that Messrs. Langstroth & Son sell similar machines at twelve dollars each. This I consider a very moderate price, if they prove to be practically as serviceable as mine has been. Mine cost me somewhat more, but paid for its cost twice over in a single day. According to my estimate, under proper management of an apiary, the combs are intrinsically worth, to the bee-keeper, as much as the honey they contain.

W. Wolff.

Jefferson, Wis., Aug. 10, 1868.

[For the American Bee Journal.]

The Honey-Emptier.

This machine is the most useful invention that has been made for bee-keepers, since the introduction of movable frames.

I made one of large size, to hold any frames which were in my hives, and it does work like a "charm."

In addition to the praises of "Novice," I would say it is good for those sending away queens. I take frames with enough sealed honey in them, and if there is too much I slice a part, then give them a turn in the machine, and it is impossible to get bees daubed with honey, even if they go twelve hundred miles.

Bees have done well here this year, though not quite equal to last year.

J. L. Hubbard.

Walpole, N. H.

In the British annual register for 1767, page 117, there is published an account of a petrified bee hive found in the mountains of Siout, in upper Egypt. Broken open it disclosed the larvæ of the bees in the cells, hard and solid, and the bees themselves preserved like mummies. What once was honey, was also found in the cells.

When the pirate promises masses and wax, the vessel is in a bad plight.

[For the American Bee Journal.]

The Tulip Tree.

Liriodendron tulipifera.

This, one of the greatest honey-producing trees in the world, richly deserves the attention of apiculturists.

Having been in the bee business for the last three years, here, where this tree abounds, I can testify as to its merits. The richness of the honey harvest this season, while the tulip tree was in bloom, was astonishing. My bees all seemed to be in a poor condition in the early part of the season, owing to the severe drouth last fall and the unfavorable weather in the spring. However, during the period that this tree was in bloom, they replenished their stores very rapidly. Some of the colonies increased in weight one hundred and fifty pounds each, in the space of three weeks.

The season of the year at which this tree blooms adds greatly to its value as a honey producing tree. It commences just after the fruit trees are done blossoming, and continues on to about the time the lindens come in. The blossoms, which are about the size of the garden tulip, and of a mingled green and yellow color, expand successively for three or four weeks. The honey is a golden yellow, very thick and of a rich flavor.

Owing to its rapid growth, and its blossoming at an early age, this beautiful tree would certainly be quite a valuable acquisition to the groves, lawns, and door-yards of those engaged in bee-culture where this tree does not exist.

My own experience on the grand prairies of the West give me every reason to believe that it would succeed well on those fertile plains, and would be the *right* tree, at the *right* place, and in the *right* time for the honey bee.

As an ornamental tree it is magnificent, growing straight, with pyramidal top, heavy thick foliage of large peculiarly shaped leaves; and on the end of nearly every twig the flowers or blossoms appear. In a lumber point of view, it is to us what the pine is to the North-West.

J. S. Flory.

Oak Hill, West Va.

[For the American Bee Journal.]

Moth Worms in Langstroth Hives.

If moth worms are found in frame hives, more especially in the Langstroth, it will be seen on examination that the material has shrunk since the hive was made; and that the frames touch the bottom of the hive. To get rid of the worms, tack a half-inch strip under the honey-board, and two strips for the frames to rest on. This is a sure remedy. At least I found it so, this spring.

John M. Price.

Buffalo Grove, Iowa.

He that hath a head of wax, must not walk in the sun.

[For the American Bee Journal.]

Unprepared Swarming.

One of my hybrid colonies swarmed, this year, on the 11th of May, giving a second swarm on the 22d, and a third on the 24th, of the same month. There were no swarms of native bees until near the close of June, and then but few.

I had several natural swarms this year, before any preprations had been made in the hive for such an event—not even an egg had been placed in a queen cell. In one case I opened the parent stock nineteen days after the swarm issued, to see whether the young queen had commenced laying, and the first frame I took out contained more than half a dozen queen cells, from one or two of which queens had apparently just issued, and from the others they came out within ten minutes. I found cells on other frames in the same condition. The accepted natural history of the honey bee will have to be revised, will it not?

I prize the JOURNAL very much.

W. C. CONDIT.

COLUMBIA CENTRE, OHIO.

[For the American Bee Journal.]

Impregnation of Young Queens.

MR. EDITOR:—Have you, or has any reader of the JOURNAL, observed the difference in time in the impregnation of young queens from different mothers; some almost invariably running four or five weeks after they are hatched out, before you find brood in the hive, and others only three or four days? I have observed such through four generations. Is this a rule, or only an accidental coincidence? Or do bees, like other stock, transmit their good or bad points?

As artificial swarming gives complete control over the production of either queens or drones, so that you can raise either from such mothers as you wish; and if by further experiment, this is found to be the rule, and Köhler's process for securing the impregnation of queens by such drones as you select, is successful, it will be of benefit to those who desire to improve their bees—especially to those who would like to secure a rapid increase of their colonies. Will those of your correspondents who may have experimented, give their experience?

JOHN M. PRICE.

BUFFALO GROVE, IOWA.

SUBLETTE, ILL., June 29.

The season here is very poor for bees, thus far, in Lee county. They have not been able to make a living until last week. No natural swarms yet. J. VANDERVOORT.

M Eugene Thirion, of Venezuela, sent to the Paris exposition a nest of a species of honey gathering wasp, *Vespa mellifera*. May not this insect be identical with the Mexican honey hornet?

[For the American Bee Journal.]

Management and Hives.

MR. EDITOR:—I have just read Mr. Gallup's article on bee management and ventilation, in the July number—which I like, and hope he will give us more of his experience and experiments, with details.

Although the management of bees must vary with different persons, seasons, and localities, still proper management is more than half the battle, in the prosperity of the bees and the amount of surplus honey obtained. Mr. Gallup's long experience, and the many experiments he has made are of great benefit to new beginners. Yet all may not come to the same conclusion from the same experiment; and an experiment that may be successful with one man, or in a different locality, might not be so in others.

I would suggest that he communicate his way of getting the most surplus honey from every swarm of bees wintered through in good condition, if in non-swarming, swarming, or by the most rapid increase. My experience is to increase from one to ten, and in the fall, as soon as the honey harvest is over, take up all that you do not want to winter. Last year the ten swarms averaged thirty-five pounds each. I am trying it again this summer, and the prospect now is that they will do better this year than last, and by the use of the honey-emptying machine, I think the product can be doubled next year.

I use a double hive, with two movable division boards for the inside covers of the hive to rest on, which are moved towards or from each other, according to the size of the swarm, and thus make the capacity of the hive from one to seventeen frames, one foot square.

To make my artificial swarms this spring, two old stocks furnished brood enough to make one new one every week since the first of June. I took eighty frames of brood, one foot square, from four hives in one month.

The question was asked in a back number, whether queens could be introduced by putting the queen on a frame in an empty hive, and that placed on the stand of another swarm, if the bees would receive her. I have had the chance to try it several times lately. In destroying queen cells occasionally there would be a live one in it. I have introduced four from that source, every one of which was successful, and is doing well.

The honey harvest has been very good so far; white clover being very abundant.

JOHN M. PRICE.

BUFFALO GROVE, IOWA, July 12, 1868.

The opinion that stolen bees will not thrive, but pine away and die, is said to be almost universal among the peasantry in England.

The honey bee is an excellent botanist, a first-rate mathematician, and a rigid economist.

AMERICAN BEE JOURNAL.

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AT TWO DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

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[From the Bienenzeitung.

Practical Bee-Culture.

To prevent or arrest Robbing.

As regards robbing, I am unfavorably situated in the spring. At the end of March, or the beginning of April, according to the season, a migratory bee-keeper arrives here with his stock of bees, consisting of from eighty to a hundred hives, and takes position on area within gunshot of the front of my apiary. His bees, in flying, usually pass directly over my hives, especially on the best and busiest days, and robbing of course is the regular result. Happily he only remains here while the fruit trees are in blossom; and then removes his stock eight or ten miles further south. In fine weather his bees announce themselves as desperate brigands, immediately after his arrival, and I used to find it exceedingly difficult to save or rescue my common bees from their attacks. But this is not so any longer. I never felt any concern for my Italians, as they thoroughly understand the art of repelling assailants, and it is quite amusing to see how promptly and energetically they beat off the robbers that venture to approach their quarters But my common bees are not so well versed in the science of self-defence, and need assistance when attacked—which I can now easily give them, by the application of very simple means. No sooner do these brigands make their appearance at my straw hives, than I insert in each two iron or wooden pins about an inch below the entrance; on which I lay a thin strip of board about three inches broad, and of a length corresponding with that of the entrance. On this I set edgewise a piece of clear window glass four inches square, leaning its upper edge against the hive. If the bees are in box hives, this preparatory arrangement is not required, as the glass can be set on the alighting board, directly before the entrance and leaning against the hive, as above. The inmates of the hive quickly learn to find their way in and out, around the side edges of this glass, but the robbers, which always first hover around the entrance, watching for an opportunity to slip in unobserved, are thus nonplussed. They are now compelled to make their attempts to enter directly in the face of sentinels standing ready to seize them. Even though, now and then, one succeeds in making his way in, gorges himself hastily with forbidden sweets, and hurries out, robber fashion, to leave for home, he finds that he has made a miscalculation and dashes head foremost against the obstructing glass. Disappointed and confused, his actions betray his conscious guilt, and he rarely fails of being seized and so hustled about, that if he escapes with life, he feels small disposition to return and run the gauntlet again.

I once thus protected and saved a queenless colony to the 16th of May, awaiting the arrival of an Italian queen ordered from Professor Mona. By this means, too, my small nucleus hives, used for queen-raising later in the season, are effectually secured against robbers. I have found it efficient, likewise, in cases where the attacked colony was already so far overcome that only feeble resistance was still made. By contracting the entrance somewhat, and adjusting the glass, the assailants were at once disconcerted, the courage of the assailed revived, and the trouble was ended.

Weak swarms, and colonies suspected of being queenless, may, in this way, be protected in advance. The bees soon become accustomed to the arrangement, and the bee-keeper saves time and is spared much vexation.

Gravenhorst.

To Prevent Drone Comb Building.

In a late number of the *Hanover Centralblatt*, Mr. Bruno says:—"It must be conceded that we are not yet in possession of any infallible method of preventing bees from building drone comb, and are hence perpetually constrained to resort to the knife for pruning it away, so long as it pleases the workers to build drone comb in preference." Now, for the benefit of such bee-keepers as are still thus annoyed, without knowing of an adequate remedy, permit me to communicate the following: A colony of bees having a normal fertile queen will build worker combs exclusively, if reduced to the condition of a swarm while pasturage is abundant; and only after its hive is thus furnished, will it proceed to build drone comb. Hence if from a strong stock all the honey and brood combs be removed, and the queen and workers brushed back into the now empty hive, worker comb only will be built. The brood combs thus removed and freed from bees, should be given to some other colony which still has room for combs in the brooding apartment. If, on examining the deprived colony a week subsequently, we find that the bees, having built a supply of worker combs, are beginning to build drone comb, or show a disposition to do so by constructing transition cells, all the empty space should at once be filled with worker comb taken from the hive in which the removed brood combs were inserted—that hive being now, in turn, treated in the same manner as the first, by removing the combs and brushing back the queen and bees, that these likewise may now build worker comb exclusively.

By this process bees are never injured, no time is lost, nor is any honey wasted on useless drone brood, and a large amount of new and beautiful worker comb is obtained for the use of new colonies or artificial swarms.

H. A. HOFF.

Foulbroody colonies should not, after the removal of the queen, be used for queen-raising, as has been recommended; as the risk of spreading the disease is thereby greatly enhanced. Young queens can much more certainly and safely be raised in healthy colonies, because in foulbroody stocks the larvæ in royal cells very generally perishes by that disease soon after the cells are capped.

After the bees, brood, combs and honey have been removed from hives in which foulbrood is detected, the hives, bottom-boards, honey-boards, frames, &c., should be well washed with a strong solution of chloride of lime, before using them again.—TRESOR.

Esparsette or Sainfoin.

In Germany this is a favorite forage crop with farmers and bee-keepers, and the latter regard the success of their business assured wherever this plant is extensively cultivated. It will not thrive in every kind of land, though it will grow and flourish in a greater variety of soils than is generally supposed. It deserves to be fairly tested in this country, especially by those who are in a position to turn to account both its fodder and honey producing qualities. We copy the following description of it from Colman's *European Agriculture*, trusting that some of our bee-keeping friends may be induced to make trial of it. Seed can probably be procured from the principal seedsmen in the cities.

"SAINFOIN. This plant is cultivated in localities where a chalk or calcareous soil prevails, both for soiling and pasturage. It is sometimes likewise made into hay, and forms an excellent fodder. It is universally understood that a calcareous or limestone soil is most congenial to its growth, and one must hesitate in distrusting the lessons of experience; but the best crop which I have ever seen of it—and an admirable crop it was—I found upon an extremely rich loam, which, from its high cultivation, might be called a vegetable garden mould, and to which no lime had been applied, and none certainly was apparent.

It is a highly productive plant, with small, pointed leaves, rather coarse branches and stem, and bearing a small blue flower. It may be cut twice in a season, and then fed, and will yield, under good cultivation, from one and a half to two tons of dried fodder per acre; but it is not so productive as lucern. It is not so apt to become heated as clover, not being as succulent. It will grow where clover will not grow; and, deriving its nourishment from a greater depth, it is less liable to suffer from drought. It may be cut, and afterwards fed off by sheep the first year of its growth; but it is not in the best condition for mowing until about the third year after planting, and then it will continue for eight or ten years. I have said one of its principal uses, is for soiling, and for this it is much esteemed. Though it may not be so valuable as lucern, clover, Italian rye grass, or Indian corn, where the latter can be grown, yet there is an obvious advantage in a variety of food; it is more agreeable to the animals themselves, and some plants will flourish in some seasons and some soils, in which others would fail. I have seen it cultivated in New England in one case only, and that not with much success. The winter there was deemed too severe for it.

The amount of seed sown to an acre is four bushels in the chaff; and it may be sown with barley, or alone. The seed is of a very uncertain quality, and should be tried in a pot. Sainfoin is a great exhauster of the soil, when suffered to ripen its seed.

Lord Essex gives an account of curing a crop of Sainfoin, which was cut on Monday and Tuesday of the last week in June, when in full flower. It was once turned on Wednesday, and carried and stacked on Thursday and Friday. The weather was dry and hot, but the hay was still so green, that much moisture exuded upon pressure. It was stacked with alternate layers of oat straw. It came out in the finest condition, and the interleaved straw was much improved. It is well known that, with us, clover is often cut in the morning, turned once merely, in a hot sun, and then packed away, the different layers being well salted, at the rate of more than a peck of salt to the load. In this way, where the moisture proceeds from the sap, and not from rain coming upon it, I have known it effectually preserved, and furnishing an excellent fodder.

There are different kinds of Sainfoin, some of them distinguished from others by greater earliness. I saw in the same field, side by side, and where both kinds had been sown at the same time, a second crop coming on, where, in one case, the plant was in full flower, and, in the adjoining land, the plants showed no signs of flowering. I know no means of distinguishing one from the other in such a case, but by actual trial. The farmers who cultivate this crop successfully, esteem it very highly. Messrs. Law-ton, of Edinburgh, speak of having, in 1833, introduced from France, the double yielding Sainfoin—a very luxuriant growing variety, but I have not seen it.

[For the American Bee Journal.]

The past Seasons. Observations and Suggestions.

The last winter and spring proved disastrous to bee-keepers in this section, some losing their entire stock, and others one-half or more, owing in part to the dry warm fall, last year, keeping the bees active till late in the season and causing them to consume their stores. This spring was cold and wet, and many colonies of careless owners perished even while the apple and cherry trees were in full bloom, merely from the want of a little attention and feeding for a few days, while the wet weather continued. I succeeded in saving mine, by feeding them syrup made from white sugar, which I poured into empty combs and placed in the hives.

My colonies were all (five in number) very weak in numbers this spring; but by a little attention I have increased the stocks to nine, by artificial swarming, which I practice as follows: I shake all the bees with their queen from the combs of a populous stock into or in front of a hive containing empty frames, or, what is better, frames filled with empty combs. I then place the hive containing them upon their old stand, and remove the one I took them from and place it on the stand of another populous stock, removing the latter to a new place in the apiary. Of course this must be done when the bees are flying briskly, otherwise number two would not get bees enough to protect and feed the brood. This hive should have a fertile queen given to it from a nucleus colony, which should have been formed early in the season. If this cannot be done, give them a queen cell, as either will save much valuable time, that would be otherwise lost by their having to raise a queen. Speaking of queen raising reminds me of a mistake some of my bees made this season. A colony deprived of its queen commenced a number of cells, one of which was built over a drone cell and egg. I was surprised at this, and when it was sealed over, I cut it out and inserted it in a queen cage, and suspended the cage in the hive. After waiting a sufficient length of time for it to hatch, and it not doing so, I cut open the cell and found *a dead drone, head upwards*. Query—did he die because he was wrong end up, or did the royal jelly not agree with him?

One other case occurred, in which I suppose the bees did not put enough royal food in the cell, and the larvæ, instead of being converted into a queen, produced what might be termed half-worker and half-queen. In emerging from the cell (which I saw it do) it came straight out at the top, and was not larger or longer than a common worker; and as it was from Italian brood, it had the three yellow rings or bands of the Italian worker. But it would show no disposition to sting, although roughly handled. I lost this mongrel by its falling from the comb into the grass, when I could not find it, which I regret, as it would have been interesting to test it as to whether it would have become fertile or not.

I notice that queen cells built near the centre of combs, where the laths are close together, are not near so large or long as those built on the edge of comb, and the queens are smaller in the same proportion. Now, are these small queens as prolific and as long-lived, as larger ones? Have bee-keepers noticed any difference in this respect? If so, it would be well to induce our nuclei to build their cells on the edges of the comb, where they could be of full size—which can be done by putting a small quantity of royal jelly into such cells as you may wish queens reared in.

Has any one tried the experiment of transferring worker eggs to drone cells, to ascertain whether they would produce a larger class of workers? Perhaps, by this means, we will be able to raise bees of huge proportions and long bills, and by crossing them with Professor Flanders' queen with four rings around her tail, produce a new race that will beat all creation and "the rest of mankind." Hoping some one will experiment in this line next season and give us the result through the Journal, I will close this rambling letter by wishing success to the experiments.

J. R. Gardner.

Christiansbug, Va.

[For the American Bee Journal.]

Novice's Success.

Mr. Editor:—We enclose a statement of our bee-keeping, from the *Medina Gazette*, to which you may prefix the following:

In consequence of the dry weather, our bees suddenly ceased working about the time this article was written. On looking over our honey we were much surprised to find that at least 600 pounds of the 1,000 is bass-wood honey. In emptying the combs there was no possibility of mistaking the bass-wood flavor, and the 600 pounds was all gathered in a period not exceed-two weeks time.

Is the importance of bass-wood duly understood? It has this year, in our locality, furnished considerably more honey than all other sources together.

We feel much like planting a ten-acre orchard of bass-wood trees. Can any of your readers tell us anything about their hardiness, rapidity of growth, &c.?

Scientific Bee-Keeping.

As busy as a bee has been so trite a saying that many would be surprised to learn that the little scamps are prone to laziness, but we think we can nevertheless show to all thinking minds that such is the fact.

Many of our readers may recollect that we mentioned an experiment a year ago of giving a new swarm a hive full of empty comb, and that they gathered 30 pounds in two days by actual weight. In this case, which was an artificial swarm, the bees were all of such an age that they were all honey gatherers, and as we gave them no brood they had nothing else to do. Such a yield could be kept up but a few days, as worker bees are but a short lived insect, especially in the working season, and some provision must be made for a rising generation, else our "big swarm" would soon dwindle out.

After the experiment just mentioned we became convinced that could some plan be devised to take the honey from the comb so as to return the latter uninjured to the bees, and thus obviate the necessity of that laborious operation of building comb in the busiest part of the season, that the result would be a yield of honey totally unheard of heretofore. We mentioned last spring that we had constructed a machine for removing the honey, and have only room to add that its operation has proved a success, far beyond our highest expectation. In obtaining the large results mentioned below, we brought in play a combination of facts in bee-keeping of late years, as follows:

In the spring we selected a strong stock, with a very prolific queen, and, first, removed every bit of drone comb from the breeding apartment and supplied its place with clean straight frames of worker comb; second, we arranged the second story, as it was a Langstroth hive, so as to hold frames above as well as below; third, the honey was removed by the machine at intervals of from three days to a week, or just before the bees were about to seal it up; fourth, as the swarm soon became very populous, we were several times obliged to remove comb from the centre and supply its place with empty frames, to prevent their clustering out and "loafing," so that they have in reality built several frames of comb, besides yielding us 203 pounds of pure honey up to this date, July 21st, and from appearances we think they are *not near through yet.*

Of course all our stocks have not done equally well, yet we think we could have made them do so with the same treatment. From 20 stocks in the spring, some of which were quite weak, we have taken just 1,000 pounds of honey, and increased our number to forty stocks, or an average of 50 pounds of honey and one swarm for each.

We shall feel happy to show our bees, honey, and apparatus to any who may feel interested in the subject, at any time.

Respectfully,

Medina, Ohio. A. I. Root.

Having partaken of some of the honey made by Mr. Root's bees, we can cheerfully recommend it as being among the finest we have ever seen.—*Ed. Gazette.*

The Egyptians by the hieroglyphic of a bee signified a king, because it becomes a commander of a people to mingle with the sting of justice the honey of clemency.—Purchas.

[For the American Bee Journal.]

Wintering Bees.

I have seen a great many plans in the Bee Journal for wintering bees, but I prefer the one I adopted last winter to any that has been suggested. Out of seventy-six hives wintered (among them some pretty weak colonies) I did not lose one. Whereas, winter before last, out of sixty-eight hives wintered on their summer stands, I lost thirty-eight, and the remaining thirty were weak. I came to the conclusion that what is good to keep ice in summer is good to keep bees in winter; and I went to work and built an ice house, 16 feet by 20, and 7 feet high. I used six-inch studding siding on the outside, and lined with inch boards inside; put a tight floor overhead, and then filled all around with saw dust. I also put six inches of saw dust above, on the floor. I had in each corner a four-inch opening, or chimney, through the floor, but not through the roof; and a double door in front, which kept the room perfectly dark. We had pretty cold weather last winter, yet water would not freeze in that room. Towards spring, it was getting rather warm inside, and I noticed that some colonies were becoming uneasy. I then left the doors open after dark and shut them again before daylight—which operation made all quiet.

I can winter a hundred colonies in that room, and it did not cost over forty dollars to build it.

My bees commenced swarming the first week in June, though one swarm issued on the 28th of May. I only let them swarm once. Six or seven days after swarming I would cut out all the queen cells, and insert one Italian in place of black ones. I have now one hundred and thirty-five colonies; and I think when I put them in winter quarters, I shall have Italianized every one of them.

I use the Langstroth hive, and prefer it to any other form. Any one must acknowledge that the frames are easier handled than in any other hive—besides the grand place for surplus honey, which no other hive can equal.

As for wintering bees out of doors, I do not believe in it any more. We must provide shelter for all our stock in the winter; why can we not afford to do the same for our bees.

My bees are doing well, and some of the first swarms have filled six boxes of honey. Those with frames on the top have done still better. I believe bees will store double the quantity of honey in frames, as compared with boxes.

P. Lattner.

Lattner's, Dubuque Co., Iowa.

In valor and magnanimity bees surpass all creatures. There is nothing so huge and mighty that they fear to set upon; and when they have once begun they are invincible, for nothing can make them yield but death; so great hearts do they carry in so little bodies.

A bee cannot live alone; if she be alone, she dies.

[For the American Bee Journal.]

Red Clover, King Birds, &c.

Mr. Editor:—I have a few items relating to bee-culture, which I wish to communicate for the columns of the Bee Journal.

First. About bees working on red clover. I have seen it stated that none but Italians were in the habit of working on the blossoms of this plant. I think it a fact that bees of any sort gather very little honey from that source; but according to my observation, all work alike on it. At this date, August 1st, the second crop of red clover is covered with little busy bodies. I have both the Italian and the black bee, and find them all at work alike. Some weeks ago, while mowing the first crop of red clover, I found the bees at work abundantly on it, and they seemed to be doing a good business. Both varieties were at work on that field also. Hence I think it is all fancy that Italians alone work on red clover.

The honey season this summer has been very variable. The bees did poorly on white clover, filling their hives slowly, and up to the 20th of July, the prospect for surplus honey was very poor. But at that time the bees began to work on the bass-wood blossoms, and I never before saw so great a crop of honey from that source. They now promise a full supply of box honey. I have never been able to realize such great returns of surplus honey as some of your correspondents tell of. From twenty to fifty pounds I call a great yield, for this section, unless from non-swarmers, bass-wood blossoms being the last source of supply. Buckwheat is not raised to any extent in Vermont.

Do *King birds* feed on working bees? If any body knows the facts, I should like to hear them. It has been said by some writers on the subject, that it is only the drones they catch. I am inclined to think so too. There is a family of those birds that frequent the vicinity of my apiary; but I notice that it is always in the time of day that the drones are flying, and the old ones are constantly snapping up either drones or workers and feeding them to their young. If drones only are their prey, they are benefactors; but not, if they destroy workers.

A word about *hives.* I have been using, in part, for the past three or four years, the Langstroth hive. I like it well when I have a good strong swarm in it, in the midst of the honey season. It is very convenient for obtaining box honey, on account of the large top space for placing boxes. I have no trouble in wintering bees in them in cellars. They come out in the spring as strong as any of my hives. But now comes the failure. Bees do not breed and multiply in them as they do in a hive of the square form. Such is my experience, at least. Suppose you should make a hive with the same amount of space in it as the Langstroth hive, and have the frames only four or five inches deep. Anybody must see at once that bees spread out as they must be in such a hive would fail; and the reason is easily seen. The nearer to a square form, the more heat can be maintained in a hive. If we do not get a good start early in the season, we are nowhere. This spring I had eight swarms—four in Langstroth hives; the others in various kinds of square hives. The latter four filled up with bees, and were ready to swarm, a week or ten days earlier than the first mentioned. Only one of the Langstroth swarmed at all; though I made one good artificial swarm from them, and gave a few combs to several swarms that came out. I am satisfied, however, that the Langstroth principle, in a nearly square hive, is the best for practical use. C. S. Paine.

East Bethel, Vt.

[For the American Bee Journal.]

Bee Feeding.—Those Exceptions.

In Mr. Gallup's article, Bee Feeding, page 30, of the August number, he says:—I do not use a bee feeder—neither do I feed bees,

Except in the spring,
Except to young swarms, to keep them building combs,
Except in small quantities,
Except in the summer,
Except when there is a temporary cessation of pasturage.

On looking over the above *exceptions* and his method of feeding bees, I should think that he not only fed them, but fed them heavy; that he fed them often; and that he fed them under all circumstances. If there is any other reason, *except* starvation, that he has not enumerated, and that he does not feed them for, I would like to know what it is.

It also seems that he does use a feeder, as he gives a description of his method, with an invitation to use and report through the Journal.

Why a man of Mr. Gallup's experience should recommend putting a plate in the main body of the hive, I cannot imagine, except to be odd. The sprinkler I have used a good deal myself. It is the only way that I can get the bees to feed on pure molasses. They eat it, to get rid of it. I would rather pay any reasonable price for the right to use the Harrison Bee Feeder, than be annoyed by any other contrivance; and the sprinkler is wasteful.

John M. Price.

Buffalo Grove, Iowa.

Bees delight to play abroad before the hive, flying in and out as thick as if they were fighting or swarming, in breeding time, once a day usually, if it be fair weather, and ordinarily at a set time; each hive observing the same hour of the day, if it be fair. And then they will expatiate and "dance the hay" in circling motions and surrounding vagaries; and at other times, when they have been long shut up with cold or closer weather, the first fair day they will thus abroad, both to recreate themselves, and to ease their bodies, for they evacuate for the most part flying.—Purchas.

[For the American Bee Journal.]

Triangular Strips for Comb Guides.

In making the Langstroth hive, I had some difficulty in preparing the "comb guide." Not being near machinery, I had to make by hand.

I have now hit upon a neat plan and give it for the benefit of those similarly situated.

Get out and dress a piece one inch square, about two inches longer than the guide wanted. With a rip saw split this, so as to make four square pieces, leaving the surplus end to hold all together until done. When cut off, each piece will have one perfectly straight edge. Nail two pieces to a plank with edges bevelled off so that, the straight corner being down, you can, with a jack plane set coarse, make a neat three-cornered piece. Tack this on with small finishing brads.

The bees build better on this than on the large guides, ($\frac{7}{8}$—$\frac{7}{8}$—$\frac{7}{8}$), and where made by hand, four can be made as quickly as one large one, and from the same piece of timber.

A. G. W.

MURFREESBORO, TENN.

[For the American Bee Journal.]

Is it possible to materially increase the Size of the Honey Bee by Breeding?

The cell of the honey comb has been a wonder on account of its shape, but I have seen no reason given why it is always about a certain size. This fact, I conceive, is no less a subject of wonder than that; and is as susceptible of an easy solution, by plain practical laws, and has not only a relation to, but explains the former, and at the same time answers my question.

An old friend of mine, who lives some ten miles distant, having heard that I had the Italian bees, rode over, one day, to see them. His curiosity had been greatly excited, by what he had heard about them. He had not more than dismounted before he let me know his errand.

"Well," said he, "I understand you have a new breed of bees, as big as bumble bees, that make comb with cells in it as big as a thimble; that have no stings, and make honey all the year round. I came over to-day to get some, as I understand that one or two is all you need to get a start."

I informed him that he was slightly mistaken; that I had no such bees, and that no such bees existed; that I had the Italian bees, that were a little larger than *some* common bees, but that I had the common bees as large as the Italians; that they had stings, but had the reputation of using them with more discretion than the natives, and as to their making honey "all the year round," they did not *make* honey at all, but gathered it from flowers, and whenever flowers failed to secrete honey they must stop storing it.

"My dear sir," he replied, "you are not posted, for Mr. A—— told me that he saw them at Newburg."

Now, I had acquired some reputation for bee-knowledge, however undeservedly, and to save it with my friends, I had to maintain my position in this wise.

"All the habits and instincts of the bee would have to be changed, if it grew to such a size. The comb would have to be built differently. Instead of hanging it in sheets in the hive vertically, with horizontal cells on both sides, it would have to be in sheets horizontally, with cells or cups only on the upper side; for if the cells were as large as a thimble, or even a very little larger than they now are, the honey would run out of them as fast as the bees put it in. The cells in which the worker bees are reared are about one fifth of an inch in diameter, and that seems to be about the maximum size of cell that can be built horizontally, and hold the honey. The drone cells are about one-fourth of an inch in diameter, and when used for storing honey have to be turned up from a horizontal position sometimes 30°, in order to hold it."

"All that seems reasonable," he admitted, "but why should it be so? Could not this big bee make the honey stay in the big cell, as well as the little bee in the little cell? Each would be in proportion."

"Nature does not permit miracles, nowadays," I answered. Every substance exists as such, by reason of certain essential properties or qualities. Destroy any one of those belonging to any one substance, and you destroy that substance. Among the properties common to all substances is one called attraction, which is an inclination in bodies and particles of substances to tend toward each other. This property pervades all material things. Destroy it and you resolve creation into chaos again. It not only causes atoms to adhere together and form different substances or bodies, and holds them all together in a great body we call the earth, but holds all the heavenly bodies in their spheres as they revolve through space.

"Attraction of cohesion is the name given to that force which holds together particles in bodies or masses; and it is through an instinctive knowledge of this much philosophy, that the bee is enabled to stow its honey in the vessels it makes for it; and the same reason that you cannot fill a barrel with molasses, that is laying on its side, with one head out, prevents your big bee from filling its cell as large as a thimble, which is in the same position."

"But why don't it run out of the small cell as well as the large one, as the molasses out of the barrel?"

"That is what I'm coming to. Dip your finger into honey and hold it up, with the end down, and you will soon see that the honey will run down and collect in a globular drop, at the lowest point. That drop or globule will increase until it attains a certain size, when it will fall off. If you measure the diameter of the drop of honey you will find it to be about the size of the worker cell."

"I cant see," interposed my friend, "what connection there is between the honey dropping from the end of your finger and the size of bees, or even their cells."

"I will try to explain, if you will be patient.

The size of the drop indicates the cohesive force with which the particles of honey are held together; when another kind of attraction, called gravitation, is brought to bear on it, (the same force that pulled Sir Isaac Newton's celebrated apple off the tree). If the drop only attained a certain size, it would remain suspended—the force of cohesion would be greater than the force of gravitation; but other particles added give the latter the advantage, and consequently the drop falls. The honey is held in the cell by this very attraction of cohesion, and consequently the cells have to conform in size to the drop of honey, or the other attraction, gravitation, would cause the honey to run out."

"Ah! I see now what you are driving at," exclaimed he, "and consequently the bee cannot be any larger than the cells, as it has to go into them to put its honey in, and to get it out. If it were otherwise the bees would be in the same fix of the fox in Æsop, who went to dine with the stork and had minced meat served in a bottle."

"That is one reason, but not the principal one. The queen lays her eggs in the bottom of the cells, where they hatch, are fed by the nursing bees, undergo the different transformations, and emerge full size. Of course they can be no larger than the cell in which they were reared. This is so true, that drones which are sometimes reared in worker cells, are no larger than workers; and I have known workers reared in cells built so near the sides of the hive that they could not be made of full depth, that were but little larger than a house fly."

"So the cell is a sort of Procrustean bed," said my friend, "and those that occupy it must be made to fit it. I think I will go home and quit hunting bumble bees."

"Stop awhile, till I give you another idea in this connection. Does not this also explain the shape and arrangement of the cells? A great deal has been said and written, to explain why the bees build their cells with such wonderful uniformity of angle and such remarkable economy of space. Many solutions have been proposed, but none of them is entirely satisfactory. Another law of attraction is 'that when particles of fluids are left free to arrange themselves according to the law of attraction, they assume the form of a globe or ball.' For instance the drop of honey, just spoken of, the dew drops on the leaves of plants, tears running down the cheek, and drops of rain.

"Now the cells being constructed, primarily, for the purpose of holding honey, it is but natural to suppose that they would conform as near as possible in shape as well as size to the substance which it is intended to contain. Therefore they would be circular; but when we come to set them together, we find that they will not fit each other and that there is a great loss of space. If that space is filled with wax, there is a waste of material; so nature, always economical, adopts the only shape that will answer the purpose for which they were intended; and constructing all the walls and partitions of an equal thickness, the thing is done, without requiring the bees to work out a difficult mathematical problem. There is no other shape except a cube or square that could be adopted, and that would neither suit the form of the maturing bees, nor be of such a shape as to take advantage of the law of cohesion in retaining the honey. The hexagon varies so slightly from a circle that it is substantially the same."

D. L. Adair.

Hawesville, Ky., August, 1868.

[For the American Bee Journal.]

Another Mishap.

Last November I buried four small swarms of bees, without ventilation, in a bin of oats. Boards were set up around the hives, to keep the oats away from them—leaving about six inches space between the hives and boards. They were covered with oats to the depth of two feet, and had honey enough to last them till spring. They were taken out in March, *dead*. They evidently had lived only a short time, as but little of the honey was consumed. My neighbors told me when I buried them, that I would lose them. But I knew better, as Mr. Adair had told me, through the Journal, that bees could not be smothered.

Another swarm of the same size—hive eight inches square, and eight inches high, inside measure—that set in the granary on the oat bin, came through the winter in good condition.

Will Mr. Adair please to explain why this latter swarm, that was ventilated, was saved; while the others, without ventilation, were lost? There was no raising the hive a trifle here, to let in the air; and no way that light could be admitted.

A Wolverine Bee-Keeper.

Tomato Honey.

To each pound of Tomatoes allow the grated peel of a lemon and six fresh peach leaves. Boil them slowly till they are all to pieces; then squeeze through a bag. To each pound of liquid allow one pound of sugar, and the juice of one lemon. Boil them together half an hour, or till they become a thick jelly. Then put into glasses, and lay double tissue paper over the top. It will scarcely be distinguished from real honey.

One drop of water hath no power; one spark of fire is not strong; but the gathering together of waters called, seas, and the communion of many flames, do make both raging and invincible elements. And *una apis, nulla apis*, one bee is no bee; but a multitude, a swarm of bees uniting their forces together, is very profitable, very comfortable, very terrible; profitable to their owners, comfortable to themselves, terrible to their enemies.—Purchas.

In no way can we get at all the facts, correct errors, and reconcile statements, unless each collector carefully observes, and truthfully gives his own experience in the various fields of pursuit.—American Naturalist.

[For the American Bee Journal.]

Shallow Hives again.

Mr. Editor:—The Journal is highly prized by the bee-keepers in this vicinity.

The article in the August number, page 39, by R. Bickford, agrees with my own observations exactly. But will he please tell us through the Journal what the new plan of Mr. Langstroth is, for wintering bees?

Mr. Gallup, on page 40, says Mr. Alley is compelling him to state some truths. Then he goes on to make some statements which, if he intends for truths, do not answer the purpose. He says, "now for some of my reasons. In the hollow gum or the American hive the bees will commence about so many combs, for worker comb, say from six to eight, and as they are tall in proportion to their size, those combs are carried down to the bottom all worker comb." Now those bee-keepers who have not seen the American hives with combs built in them by the bees, might believe this. But I have nine of those American hives in which every frame is filled with comb built by the bees, some of them by Italians, and some the common black bee, and not one frame in either of the nine hives is in the condition in which he says they will be. My friend, Mr. William O. Sweet, of West Mansfield, Massachusetts, has some thirty or more colonies in those hives. I asked him if his were in the condition Mr. Gallup says they will be. His reply was, "No, not one."

Now about those shallow hives. Last fall I bought two of them of Mr. Alley, and about the last of November I transferred a colony of black bees to one of them, giving them six frames well filled with honey and bee-bread. There was the queen and a few bees, less than a quart. I then put on the corn cob pan and cover. We had a long, cold, hard winter, so that the bees did not fly out at all until about the last of February, when I opened the hive and found a good, full colony. They had actually increased during the winter. The depth of the frames is $8\frac{7}{8}$ inches. In April I bought twenty-two colonies in single boarded hives, with frames of the same size as Mr. Alley's. They had stood out all winter, in a cold place, without any covering or protection whatever. Most of them had only eight frames, some ten, and one fifteen. They were all in first-rate condition. Some were Italians, some hybrids, and the rest common black bees. They have done very well this season; have thrown six swarms that have filled as many hives of ten frames each; and have made considerable surplus honey. From one colony, which did not swarm, I have taken ninety-three pounds of honey in frames which were set over the hive in the place of boxes, leaving off the honey-board. From another I have taken twenty-eight boxes of three pounds each.

Mr. Benjamin King, of Raynham, Massachusetts, has used the Langstroth hive, with frames the same depth, ($8\frac{7}{8}$ inches), for the last ten years or more, and has usually left them out all winter on their summer stands; and they have always wintered well with him.

Taunton, Mass. H. B. King.

[For the American Bee Journal.]

Late Reared Drones.

In opening a hive of Italians to-day, (September 1), to show a friend the practical workings of movable frames, I was surprised to find about one-sixth of the card of comb I lifted out filled with capped drone brood. These are the only drones that have been raised in this hive during the season, although I have manœuvred not a little, to have them furnish early drones, as it contained my only pure Italian queen. Early in the spring, I moved all the combs containing drone cells to the centre of the hive, but the queen refused to supply them with eggs, although she is a very prolific one.

If these drones are not destroyed it will afford me a good opportunity to have a lot of queens purely fertilized, as all black drones have been killed off.

Pure Fertilization.

Could not this be secured by imparting to the nucleus containing the queen some powerful odor; and also to the nucleus containing the drones that we wish to cross with? Would not the black drones be repelled by the scent, whilst the others would not? Will some bee-keeper give it a trial, and report through the Journal?

J. R. Gardener.

Fancy Farm, near Christiansburg, Va.

Hunting Wild Bees.

Hector St. John, in his letters, give the following curious account of the method which he employed in discovering bees in our woods in early times: Provided with a blanket, some provisions, wax, vermillion, honey, and a small pocket compass, he proceeded to such woods as were at a considerable distance from the settlements. Then, examining if they abounded with large trees, he kindled a small fire on some flat stones, close by which putting some wax, and, on another stone near by, dropping distinct drops of honey, which he encircled with vermillion. He then retired to watch carefully if any bees appeared. The smell of the burnt wax, if there were any bees in the neighborhood, would invariably attract them; and on finding the honey, they would necessarily become tinged with the vermillion in attempting to get at it. Next, fixing his compass, he found out the direction of the colony by the flight of the loaded bees, which is invariably straight when they are returning home. Then timing with his watch the absence of the bee till it would come back for a second load, and recognizing it by the vermillion, he could generally guess pretty closely to the distance travelled by it in a given time. Knowing then the direction and the probable distance, he seldom failed in going directly to the right tree. In this way he sometimes found as many as eleven colonies in one season.

* * *

Field Music—the hum of bees.

[For the American Bee Journal.]

Wintering Bees.

Mr. Editor:—You will please find enclosed two dollars to renew my subscription for your valuable Journal, together with a statement of my experience in wintering bees with success.

I commenced bee-keeping some eighteen years ago, and had as many as fifteen swarms. But by mismanagement and leaving the hives on their summer stands all winter, I lost every one by cold weather. I then bought two swarms more, and they froze to death by the same management. But, being a spunky German, I bought a third time, procuring three swarms on this occasion. By this time I became acquainted with Mr. Langstroth's Book on the Honey Bee, which I read with great interest, especially the portion on wintering bees, and the description of a bee wintering repository on page 348, third edition; and I concluded to provide one for my bees. I dug mine in the ground three feet deep, eight feet wide, and sixteen feet long—boarded up on all sides six feet high. I then put on a board roof, and banked up the sides with dirt. The gable ends I banked up with straw, and put in each a tube four inches square for ventilation. I placed the door in the north end, to prevent the entrance of too much light when opened. Shelves were arranged within on the two long sides.

This repository will hold sixty stands of bees. I put them in this place the first part of December and take them out about the first of April. When I put my hives in this repository, I give each of them ventilation, as well above as below. For the Langstroth hive, I leave the honey-board on, with an inch opening, the width of the board, for upward ventilation, and one square inch below. For the square box hives, I give four inches square for upward ventilation, and one inch square below.

In the year 1865, I placed in this repository nineteen stocks of bees, and left two out on their summer stands. I took the nineteen out of the repository on the first of April following, all in fine condition. The two stocks that I left on the summer stands through the winter lost about one-half of their bees, and recovered with difficulty. In the year 1866, I wintered twenty-eight hives in this repository, and in the following winter thirty-six. All came out well in the spring, without the loss of any. When bees are in the repository, it is important to let them remain undisturbed as much as possible. I visit mine not to exceed three times all winter, and those visits are made as clandestinely as possible, as I do not wish the bees to become conscious of my presence.

Now I will say that nothing further is necessary to convince me, and I think every other person, this winter-housing of bees is destined to prove itself to be the most successful method of management that has ever been introduced in our northern climates.

In this section bees have done very poorly. A wet spring and a dry summer made the bee pasture scant, and it is more than probable that every stock left out in the open air this fall will perish before the opening of spring.

Two full-bred Italian queens which I bought of Mr. Langstroth are doing very well. They are fine specimens. I have raised sixteen young queens from them this summer, which mostly were fertilized by Italian drones.

I will here mention a rare case of delayed fertilization. I have a queen which was six weeks and two days old before she became fertilized. She was in one of Mr. Langstroth's movable comb hives, which I think is the best hive in the world. I could thus keep track of her and see her so often that there was no chance for mistake. I will send you more some future time.

H. Rosenstiel.

Lena, Ills., Sept. 2, 1868.

[For the American Bee Journal.]

Wintering Bees in Shallow Hives.

I intend to try a new method of wintering bees in the shallow hives the coming winter. I shall remove the honey-board which I use in the summer season, and use in place of it a whole one, which I shall fasten on with screws; and make an entrance on the front end, large enough for the bees to pass out during the warm days in winter. Now, after putting a strip of wood across the front end, inside, to keep the frames in place, and another across the top of the frames, I shall turn the hive up on the front end, and secure it so that the wind cannot blow it over; then put the cap on to keep out the water and snow. The winter passages should be made as usual; and if there is a glass in the rear end it must be removed, or covered with woolen cloth.

If others should test this method, they will find it a good plan to prepare a hive and then transfer the combs into it. If this is done as early as October 1st, I think the bees will remove the honey below them to the empty combs near the top or centre of the hive.

By turning the hive up we have a *deep* hive, and not a *shallow* one. Of course they will winter well, as all agree that a deep hive will winter better than a shallow one.

I have never wintered a stock in this way and shape, and hope others will test this plan as well as myself, and report through the Bee Journal.

If the hives are well stocked with honey and bees, I see no reason why they should not winter well in a hive thus prepared.

H. Alley.

Wenham, Mass.

In the "*Magazine of Natural History*," we find the folowing instance recorded of singing psalms to bees, to make them thrive: "When in Bedfordshire, England, lately, we were informed of an old man who sang a psalm, last year, in front of some of his hives which were not doing well; but which, he said, would thrive in consequence of that ceremony. Our informant could not say whether this was a local or an individual superstition."

[For the American Bee Journal.]

Wintering Bees.

Last season I put up seventy-five colonies of bees in box hives, on the first of December. They were arranged in three rows, side by side, each being four rods long. As will be seen, the hives did not set very closely together. It would be well enough to say that they were not put into a cellar, or building, but near the ground, out of doors. The entrances of the hives were on the inside of the rows. The surplus boxes were removed, so as to give upward ventilation. A light roof [of what?] was then put over the hives on the top and sides, making the interior perfectly dark.

On the first of March the bees were removed to their summer stands. But I found eighteen stocks had gone over to Jordan, leaving plenty of honey, in consequence, as I thought, of suffocation. Those that survived came out in good condition. But it seems to me the above is a poor way to winter beees. What do the readers of the JOURNAL think of it? Can they suggest any modification that would be an advantage?

The ensuing winter I propose to try another plan, and would like see the views of your readers upon it. Here it is. A part of my apiary I will put into my house cellar, and the balance into bee-houses, where they are kept during the summer, leaving the honey boxes on, and closing the entrances to the main hive. I propose then to cut a four inch square hole in the bottom-board and cover it with wire sieve—serving the ends of the boxes in the same way. This will give ventilation directly through the hives, and will confine the bees, so they cannot fly out during the winter and get lost on the snow. When bees can fly out in winter, the stocks get so weak by spring that we fail to get early swarms from them. My first swarms this year did not issue till the fourth of July. I must adopt some means to get earlier swarms.

ABRAM J. BRUNDAGE.

OTTAWA, ILLS.

Mice.

In the fall of the year, particularly in the month of October, mice are apt to make their way into box and straw hives, the entrances of which are unduly large. These vermin may be kept out by inserting a few large pins or broken needles vertically in the entrance, at such distances apart as will permit bees to pass readily, but exclude mice.

On a Continental forty-five dollar bill, issued on the 14th of January, 1779, is represented an apiary in which two bee hives are visible, and the bees are seen swarming about. The motto is, "*Sic floret Respublica*"—Thus flourishes the Republic. It conveys the simple lesson that by industry and frugality the Republic would prosper.

[For the American Bee Journal.]

Melilot Clover. No. 4.

As I am constantly besieged with inquiries with regard to melilot clover, please publish these remarks.

Three pounds of seed are enough for an acre. The plants do best when not less than a foot apart. The fall is the best time to sow it, as the seed is more sure to germinate than if sown in the spring. It does not all grow in the fall, the freezings and thawings will prepare the balance for starting early in spring. If it comes up in the fall, the plants will bloom the next season, and they will get such an early stand that the weeds will be kept in check. The first season's growth seldom blooms, and as the plant *dies*, root and branch, after it does bloom, it is a good plan to sow twice, in the fall and in the spring, so as to have a constant succession of crops from the very first.

The seed may be sowed with wheat, rye, or barley, or alone If sowed early in the fall, it should not be with grain, or the plant will be cut down the following season, when in full bloom. This would spoil the honey crop, in the main, for that season. A short harvest may be expected late in the fall.

It is a good plan to soak the seed in tepid water, until it swells and is nearly ready to sprout. Then pour off the water, and mix with dry fine sand. In this way the seed can be sowed broadcast without much trouble. But when thus treated the ground should be moist. Immediately after, or just before a rain is a good time to sow it. The ground should then be gone over with a light harrow or a pile of brush.

Melilot clover will grow on any soil, but is rankest on low moist ground. Except in very dry seasons, it will yield the most honey on high soil. It is well to have part of the crop on low and part on high ground. No fear need be entertained that water will kill it. We have it growing where it is covered with water, several feet deep, for three or four weeks in the spring, and we never fail of a crop each season. It is to-day (September 5), in full bloom.

Several parties whom I might mention, in different localities, are raising this clover exclusively and extensively for their bees, having become satisfied that it has no equal as a honey plant. A report for the BEE JOURNAL is in preparation, and will be soon forthcoming, that will open the eyes of bee-keepers to the importance of cultivating the melilot expressly for its honey.

M. M. BALDRIDGE.

ST. CHARLES, ILL.

A colony of bees has occupied part of a chimney stack, in England, for upwards of a century; and there is no recollection of a swarm ever having been captured from it.

In Bishopsbourne, England, there is said to prevail the singular superstition of informing the bees of any great public event that takes place, else they will not thrive so well.

[For the American Bee Journal.]

Bee Hives, Cuts, and Explanations.

Mr. Editor :—In the June number of the Bee Journal, volume 3, page 235, I called the attention of our patent hive men to the propriety of giving us nice pictures of their respective patented hives in your Journal, as it would be more attractive for the reader, and give him a better idea of what he is reading about, if accompanied with a copy of his patent claims in the hive represented. Well, then comes the July number, (volume 4), in which, on page 14, we have the illustration of T. F. Bingham's hive ; but he fails to give a copy of his claims—hence we are left without the desired explanation of his illustration.

Next comes the August number, and on page 38, we are called upon to notice William Henchen's straw movable comb hive. But he also fails to give *both* the illustration of his hive and the points of his claims—though admitting at the same time that this would be "instructive and useful." He says :—"it is patented and yet free, because I am a zealous friend of bee-culture." If a *zealous friend* of bee-culture why not illustrate the hive you prefer and give all the explanations of it for the benefit of others, since *it is free?* Certainly Mr. Henchen can have no objection to the exhibition of the likeness of his hive in the American Bee Journal, with the claims to its *utility*, as long as he remains a zealous friend of bee-culture.

Who will appear next with the illustration of his hive, and a copy of its patented claims ?

Let one or two appear every month, to adorn the pages of the Journal and we shall soon see quite an interest in that direction, to give the cheapest, best, and most profitable residence of the bee, and of the greatest utility to the bee-master.

I would remind friend Gallup, of Iowa, while he is in such an "awful muss" about the bee-hives, to give us a picture of the one *he prefers*, with an explanation of all *its fixtures*. It will be none the less *worthy* of attention because it it not patented.

We admire a *nice*, *convenient*, profitable residence for our own bees. I "pitch in" for the pictures and the explanations of all the patented hives. Come on—don't be backward.

J. Davis.

Charleston, Ill.

Bees have all the same common laws, and with common care observe them all. They have one common bond, not to have anything lawful for one which is not lawful for another; but whatsoever is lawful, is lawful to all.—Purchas.

The best place for wintering bees is a roomy, dry, dark cellar, having a temperature of about 40° F. Few bee-keepers, however, have facilities for thus wintering their bees.

"Whoso keep well sheep and bee'n,
Sleep or wake, their thrift comes in."

[For the American Bee Journal]

Discolored Bees.

Enclosed you will find a vial of alcohol in which there are a few Italian bees, both drones and workers, all taken from one hive. You will notice that two of the workers are lighter colored than the others, and have somewhat the appearance of workers that have just left the cell, though they were old enough to fly, and were taken from the outside of the hive. I have seen perhaps a dozen or more such workers in the colony, and have bred a few queens from the mother, in the hope of getting one similar in color, or one whose workers were similarly marked, as a curiosity. In the first I failed, but succeeded in rearing one whose workers were nearly like the one with the three white bands, as seen in the vial. She was accidentally lost, before any of her workers had matured, and I raised no queen from her.

I would remark that the alcohol has changed the colors somewhat. There is a greater contrast between the two colors on the same bee, than there was before putting them in the alcohol ; the dark color is darker, and the light perhaps a shade lighter. If the mother lives I shall try again next season.

The workers were all taken from the outside of the hive, the honey sacs being empty, and the third band does not show as plainly as it would if the honey sacs were filled. I reject all queens as impure whose workers do not all show three yellow bands. The drones are selected. I have no queen whose drones *all* show as fine as those sent. The workers—yellow-banded—were taken at random.

J. H. Townley.

Tompkins, Mich.

☞The "lighter colored" workers, above referred to, may be classed with the curious instances occasionally observed, showing a disposition to "sport" in the Italian bees, and perhaps indicating that they are not really so distinct a variety as they are usually thought to be. If the queen whose progeny they are, produce drones also with similar deviations from the ordinary markings or color, a variety possessing those characteristics permanently might perhaps be originated. The experiment however would require patience and perseverance and involve much difficulty and trouble, for which the result would probably be no compensation, unless it led to a clearer insight into the process or law by which nature effects variations in species. The other workers, and the drones, are among the finest specimens we have yet seen.

In an old English paper there is a notice of a swarm of bees that clustered inside of a lady's parasol, as she was promenading the street in a country village. They were hived without injury to the lady, or the parasol.

Humble plains or lowly vallies are commended as the best place for a bee-garden.—Purchas.

[For the American Bee Journal.]

Wintering Bees on their Summer Stands.

An article which appeared in the JOURNAL of May, 1868, from the pen of my father, on a new plan of preparing bees for winter, has drawn forth many inquiries in regard to the details of his method. He stated, in that article, that the full particulars of his mode would be published in the JOURNAL; and the time when such promise should be redeemed seems to have arrived. I would leave to him the explanation and presentation of his views on this subject; but he is, unfortunately, again prostrated by the return of a disease which has for years, at frequent intervals, incapacitated him from writing, talking, or experimenting on his favorite pursuit, apiarian science. Anxious that the bee-keeping public should be put in possession of this mode of successfully wintering bees on their summer stands, in time for use the coming winter, I shall briefly communicate the details without attempting to enter into a full exposition of the reasons that led to its adoption. Experience teaches that there will not be found wanting those who are ready to make indiscriminate attacks upon anything and everything which has our name connected with it; but also those who will "prove all things and hold fast to that which is good." In place, therefore, of the full description, both of theory and practice, which my father would give were he able, I present the following brief directions for preparing colonies, in the Langstroth hive, for open air wintering.

First, we (temporarily) double an empty hive on three sides by nailing half-inch boards on the outside of its legs. (All our late style of hives are provided with four legs 1 inch by 2, and 15 inches long, nailed on the sides, front and rear; their tops coming under the ledge on which the upper cover rests). These side boards can be put on any hive already in use, together with the legs, if they are not already there; they should extend 1⅝ inches below the bottom-board of the hive, making them 11 inches wide and 24 inches long, put on so as to project 1⅝ inches behind the rear end of the hive. An end board, 19 by 6½ inches, is nailed or secured to the projecting ends of the side boards, fiting up to the ledge on which the upper cover rests, and coming down even with the top of the rear ventilator. Another piece 19 by 4½ inches, fastened by any simple device that will admit of its being readily removed at any time, and put on behind the rear ventilator, completes the outside casing. This can all be readily removed in the spring and replaced in the fall, when desired; though many may prefer leaving it on, thus making a cooler hive in summer where the apiary is exposed to the direct rays of the sun.

Having thus dressed the empty hive as it were in crinoline, turn it upside down and fill in the air chamber with wool, woolen rags, dead leaves, or similar substance; then a heavy coating of straw is laid on the bottom-board, held in place by a few battens. If preferred, tan bark or saw dust can be put in the empty spaces and held in place by boards fitted for the purpose. Now right the hive, put strips on the rabbets so as to raise the frames about half an inch higher from the bottom-board, and lay a piece of corn cob, sawed to a proper thickness, centrally from front to rear and from side to side, so that bees can always have a warm and easy way of reaching the central cluster from the bottom-board. By taking off the lower back piece and raising the ventilator, you have the power in a few moments of sweeping out every dead bee in the hive. This can be done in weather that would not allow of the opening of the hive, and in a large apiary where all the hives cannot be opened in the first spring-like weather, will be found to be of great importance. By this arrangement we unite all the advantages of movable and permanent bottom-boards, without the usual disadvantages of either. If the frames are not raised there is too little space under them for cleaning out the refuse. If desirable, a covered way can be made on the alighting board, by a thin board with two one-quarter inch clamps, this board not to come out within one inch of the outer edge of the portico. A board shutting up the rest of the portico above, may now be fitted in, and the space within be filled with straw, saw dust, or similar packing material. Leave the whole entrance open; mice cannot get in and scarcely a ray of light, while the foul air which collects on the bottom board, and when all below is kept tight often smothers the bees, can pass out. In putting a colony into the hive, thus prepared, the one of the combs that can be best spared is left out, and the space gained given to the four or five central spaces in which the bees will cluster. More bees are thus enabled to occupy the central spaces and keep warmer. This idea was first suggested by Mrs. William Harris, of Buffalo, New York, who has fully tested it. We have no doubt of its great importance. Across the top of the frames lay two strips, ¾ inch thick, leaving between them centrally a space of about eight inches. Over these fasten a piece of old woolen carpet, coat, or pants, or several strips of woolen rags torn into narrow bands, making a shallow chamber over the central part of the hive. The spaces between the combs outside of this are to be stuffed with woolen rags or loose wool, or covered with old woolen cloth or carpet, or both stuffed and covered. And over the central chamber loose wool or woolen rags are to be laid, to such amount as the climate requires. The bees will be found to cluster densely under this *warm central shallow chamber*, and from it they can radiate to any of the honey combs—making it just as easy to winter them in the shallow frames as in a deeper form of hive. As soon as it grows cold, they retreat from the front, rear, and bottoms of the combs towards this central chamber, which is always filled with bees and kept warm. Sugar candy or liquid food can be fed in this warm central apartment when the mercury is below zero. *Every particle* of dampness escapes through the woolen carpet, rags, or loose wool, away from the bees and yet their warm bed-clothes retain their animal heat admirably. For the purpose of experiment we have used six thicknesses of carpet and yet a board on top, in a cold morning, would be coated with frost or drops of moisture and the carpets be *dry*. The bees are kept dark and will not stir, unless the weather is warm enough for them to fly abroad; and if, in any sunshiny weather, you wish to entice them to fly you may open the back ventilator, and also leave off the top cover to let the sun shine in. If there is the least risk of dampness the tops may be left off in any bright still winter day. The outside doubling coming down below the level of the sides and bottom of the hive, will guard the bees greatly from the effect of piercing winds. Any bee-keeper can thus have his bees put up to winter as well (if not better) on their summer stands than in the best winter depositories, and this even in Minnesota. The colder the climate the more wool should be used. All the wool used may be sold in the spring, only the interest on its cost price being lost; and if woolen rags are used the cost is hardly anything.

Such is the plan, which may, at first sight, seem to require a great deal of time, trouble, and expense, in preparing the bees for winter and taking them out in the spring. It should be borne in mind, however, that every *good* bee-keeper wishes to make a thorough examination of each of his colonies in the fall and spring. With one empty hive to commence on, he can go through his apiary, shifting each stock into a prepared hive at the time of making this examination, and the time and money spent in fixing the hives may be safely set off against the usual expenditures where especial depositories are used. The outside boards may not be found *necessary* in the latitude of central and southern Ohio, &c., yet we think they will be found to *pay* even further south.

I have not time nor space to enter into a discussion of the especial disadvantages of burying or housing the bees. They are patent to all who have practiced those plans, in the retarding of vigorous breeding in the spring, risks of weather when removing the bees, &c.

It is only necessary to add that while my father may hereafter protect some things here described by a patent, yet during the term of his present extended patent on the frames, the right to use any improvements he may hereafter patent, is free to all those who have the right to use his hive.

JAMES T. LANGSTROTH.

OXFORD, OHIO, Sept. 9th, 1868.

P. S. The dimensions of outside casing are based on the use of a hive of standard size, viz: 22⅝ inches long and 16 inches wide, outside measurements of the main or breeding chamber, and 11 inches from the underside of the bottom-board to the top of the ledge on which the upper cover rests. If a hive of different shape is used, the dimensions of the outside casing must, of course, be varied to correspond.

Bees conserve community unto their last, for no man ever saw a bee degenerate into a drone. Great spirits degenerate not.—PURCHAS.

[For the American Bee Journal.]

Do Italian Bees work freely on Red Clover?

With some this may still be an unsettled question. On procuring the Italian variety, this was with me an important point upon which, for two years, I was not satisfied; but I am so now, and will state the facts.

During the two years referred to, while Italianizing, from various causes my stocks were weak and did not afford a fair test. Besides, the autumns were cold and wet, and there was little sweet in the clover to attract bees.

But in the summer of 1867, I procured of Mr. J. H. Thomas, of Brooklin, Province of Ontario, a beautiful queen, and in the fall, by the aid of Mr. Quinby, an imported one from the establishment of Professor Mona, in Italy. Becoming satisfied that I had then the pure article, I set to work early in the spring of this year to requeen all my stocks and provide fertile queens of that type for all my swarms. I now know that I have the right article, and they answer expectations.

I have fields of the alsike and red clovers mixed. About the middle of June, when these were coming into blossom, I saw the Italians at work about equally upon the two kinds, where these were about equally mixed. But where the alsike was thickest, it evidently attracted them somewhat more, for they would be the thickest upon that part of the field. Probably the alsike clover cannot be exceeded, in its time, as a bee plant. At different times during the summer, I have seen them (the Italians) at work upon the red clover quite freely, and that when there was an abundance of other flowers; a fact to which I called the attention of men mowing for me in a field in which I had sown large red clover only. I have both the common Western and the large Eastern red clover, and the Italians work on both, pressing the blossoms most earnestly, as if to reach to the very bottom of the nectar cups.

So much for the first crop. Yesterday I was at work cutting a small strip of Eastern red clover, and found the Italians working continually upon this second crop. Not indeed so plentifully as one might see them upon a field of white buckwheat blossoms; but possibly nearly all day, at the rate of from one to thirty on a square rod, and not a black bee to be seen upon it, although three strong stocks were located within one-third of a mile of this field. Surely in some parts of Pennsylvania, and in places where the second crop is reserved for the seed, the Italian bees should do exceedingly well, all other things being equal.

I have also seen mine working briskly on iron weed, upon which I do not see black bees.

Others may keep to their black bees, but I anticipate full pay for all expense and trouble needful in Italianizing, and keeping the stock pure. The remaining doubt with me is concerning the present power of the Italian race to abide our cold and long Canadian winters. If there should prove a defect here, thorough acclimatization may remedy it.

J. W. TRUESDELL.

WARWICK, P. Q., CANADA, Sept. 9, 1868.

[For the American Bee Journal.]

Swarms and Honey Product.

I noticed, in your last, a statement from Mr. Clark Harris, of the amount of honey and number of swarms he obtained from a hive patented by Mr. E. P. French. His number of swarms in the spring, amount of honey, and increase of stocks, were so similar to our own, that I could not help noticing it. We use the Langstroth hive. Our spring last year was one of the latest we have ever known. The season, we thought, was a poor honey season. Our stocks were drawn upon pretty seriously, particularly early in the spring, for raising Italian queens, which was continued throughout the season. With a good average honey season, I believe the above products could be nearly doubled, here, with the Langstroth hive.

L. C. Francis.

Springfield, Ills.

[For the American Bee Journal.]

Tennessee Apiarian Society.

Editor Bee Journal :—The first meeting of the Tennessee Apiarian Society was held in Nashville on the 15th of the present month. The following officers were elected :

Dr. T. B Hamlin, President.
J. M. Hamilton, } Vice Presidents.
Dr. P. W. Davis, }
J. M. Cox, }
S. S. Hall, Secretary.
A. G. Willey, Corresponding Secretary.
G. M. G. Payne, Treasurer.

After many interesting remarks by Dr. T. B. Hamlin, J. M. Hamilton, and others, and a free interchange of experience, &c., the meeting adjourned to October 3, 1868, at 10 o'clock a. m.

The number of persons present, and the general interest taken, go to show that a revolution is about to take place in bee-culture in our State. Dr. Hamlin brought to the meeting a frame of Italian bees and queen in a small glass hive ; being the first of that variety of the honey bee seen by many of those present, and causing considerable enthusiasm.

The Bee Journal was favorably noticed, and from the memorandums taken, the editor may expect to receive some substantial good from our meeting.

A. G. Willey.
Corresponding Secretary.

Murfreesboro, Tenn., Aug. 24, 1868.

As in dry weather bees gather most honey, suppose it with moderation, for immoderate drought, (as in the year 1652), withers away the flowers ; so moist weather produceth store of bees, suppose it still with moderation, for otherwise, (as in the year 1648), the perpetual rains wash away all the substance of the flowers, that not only the swarms but old stocks generally die. I lost half a hundred, in 1648, for my share.—Purchas.

[For the American Bee Journal.]

Open or Closed Top and Side Opening Hives.

Mr. Editor :—Your three starred correspondent of the September number, appears to be a good deal troubled with the Langstroth hive, and seems to think that if his hives were side-opening, he could handle his frames more easily. He also asks for the experience of bee-keepers with regard to the different kinds of hives. We have thoroughly tried side-opening hives with closed top frames, side by side with the open top frames, air space, and honey-board of the Langstroth hive. The writer had the same impression that your correspondent has, that bees would commence work in boxes sooner if placed on top of the frames, than where the air space and honey-board intervened. But such was not the case; and he went to the trouble of changing the hives (about thirty) to the open frame, air space and honey-board form.

With regard to the side-opening feature, the thirty hives above mentioned are side-opening. Yet, while having considerably more than a hundred movable comb hives, the side-opening ones have, during the last two seasons, been treated the same as the other hives, no advantage being taken of that feature. It is true some colonies fill their frames so full of honey that, to an unexperienced hand, they are difficult to take out ; but the expert will find very little trouble. With the use of a thin-blade case knife dipped in hot water frequently, combs can be pared into shape very easily ; so that there need be no necessity for a side-opening hive.

L. C. Francis.

Springfield, Ills.

Supposed New Poem by Milton. — Sir Henry Moreley has discovered an unpublished poem which he believes to be Milton's. He found it written in a handwriting like Milton's on a blank leaf in a copy of the original edition of Milton's poems in the British Museum. The poem was written in 1647, when Milton was 38 years old, and is signed "J. M., October, 1647." It is an epitaph, apparently intended for himself, and certainly, if internal evidence may be trusted, it is Milton's. A good critic might have imitated the style, but nobody but Milton himself could have infused into those long words, and far-fetched thoughts, and forced images, such a subtle melody as penetrates lines like these :

"Think not, reader, me less blest,
Sleeping in this narrow chest,
Than if my ashes did lie hid
Under some stately pyramid.
If a rich tomb makes happy, then
That Bee was happier far than men
Who, busy in the thymy wood,
Was fettered by the golden flood
Which from the amber-weeping tree
Distilleth down so plenteously ;
For so this little wanton elf
Most gloriously enshrined itself,
A tomb whose beauty might compare
With Cleopatra's sepulchre."

[London Spectator.

THE AMERICAN BEE JOURNAL.

WASHINGTON, OCTOBER, 1868.

☞ THE AMERICAN BEE JOURNAL is now published monthly, in the City of Washington, (D. C.,) at $2 per annum in advance. All communications should be addressed to the Editor, at that place.

The Fifteenth Annual General Convention of German Bee-keepers was held in the city of Darmstadt, on the 8th, 9th, and 10th of September, Professor Leuckart, of Giessen, being the President. As there was no meeting for several years past, from political and other causes, the attendance was doubtless unusually large on this occasion. The topics for discussion were to be announced in the *Bienenzeitung* for August, which, though now due, has not yet been received. Reports of the proceedings of these Conventions are not usually published very promptly, and several months may elapse before they reach us.

* * *

Complaints are reaching us, from many quarters, of the failure of the honey crop this season, and some desponding bee-keepers seem to be so discouraged by disappointment, as to be ready to abandon bee-culture for something that "*promises to pay better!*" But what is that something? Is there any pursuit that is always prosperous, or independent of times and seasons? Grain crops sometimes fail in extensive districts from unpropitious weather, atmospheric influences, or insect depredations. Shall farmers therefore horrify each other with doleful croakings, and cease to plow and sow? Fruit has failed, this year, even more generally than honey. Shall horticulturists therefore, dismayed thereby, cut down and burn their trees, resolving to try their hands at something that "will pay better" than raising apples, peaches, or plums? When farmers and fruit growers set us such examples it will be early enough for bee-keepers to think of following in their wake. But *until then* let them hold on perseveringly, trusting that the average of years will show that bee-culture is as remunerative as any other ordinary business—not even *tanning* excepted, though that is supposed to be the surest "in the long run."

The Yankees must stir up their bees, or they will be left altogether in the rear, and have to depend on treacle and tar and tallow as substitutes for honey and wax. Only think of it, at the "Great Fair of the New England Society," held at New Haven early last month, where the six eastern States were represented and premiums were proposed for a greater variety of products, natural and artificial, than could have been found in Noah's ark or Barnum's museum, there were exhibited only

"*One* sample of honey and wax, and
Two boxes of honey!!"

The Committee on Honey reported that they attended to the duties of their appointment, (which must have been onerous indeed,) and "found but two samples on exhibition." They awarded the first premium ($5) to Chauncey Goodrich, of New Haven, and the second premium ($3) to Isaac Baldwin, of Morris, Connecticut.

The Committee also reported that they "found one sample of wax, but deemed it unworthy of a premium." Surely the cordwainers ought to have been permitted to come in here for sweepstakes!

Perhaps the premiums offered were not sufficiently tempting, or not of a kind to bring out competitors. We suggest to the managers to adopt a different plan for the future. Let them abandon sordid money baits, and next year offer a few full sets of the BEE JOURNAL as premiums, flanked by copies of Langstroth and Quinby and the various Guides, Manuals, and Text Books on bee-culture, with a lot of improved movable comb hives, and half a dozen honey-emptying machines in addition, to be operated on the spot by their makers. There would be good sound sense in this; and if it fail to excite emulation and bring out a show richly worth looking at, Yankeedom must have lost her enterprise and her apiarians their skill.

* * *

PURE FERTILIZATION. In the July number of the *Bienenzeitung*, Mr. F. Pönecke says:—"The Köhler process, as well as those proposed by others, can be made available only where single and small hives are used; but, not, or with great difficulty, where bees are kept in compound hives or large pavilions. Persevering study has, however, enabled me to devise a method applicable in any case, easily manaeged, and sure in its results. I shall probably make it known hereafter."

A new treatise, in French, on the theory and practice of bee-culture, has appeared in Paris. It is said to be the first work published in that language, devoted decidedly and exclusively to the Dzierzon system.

The Austrian Government is fitting out a naval expedition to Africa and eastern Asia, for commercial purposes, and the Minister of Agriculture has inquired of the apiarian societies whether anything can be done by the officers of the expedition to advance bee-culture. In reply he has been requested to instruct those officers to procure, at the different ports they may visit, colonies of the various kinds of bees cultivated there, and send them to Vienna, *via* Trieste, in the original hives. It is thought that even if the bees should perish on the voyage, specimens thus obtained would still be important to science, and the samples of hives might furnish useful suggestions.

"Guide to the Study of Insects." Part II of this valuable publication has been issued. It contains, among other instructive matter, a general account of the Hymenoptera, and of the Honey Bee and its mode of building cells. The next part will treat of Wild Bees, Wasps, Ants, &c. Each part contains about sixty-eight pages, with plates and illustrations. The work will be completed in eight or ten parts, price, 50 cents each. Address Dr. A. Packard, Jr., Salem, Mass.

"The American Entomologist" is a new monthly, published at St. Louis, Missouri, treating popularly of noxious and beneficial insects; and is a work in which farmers, gardeners, and fruit growers should feel a special interest. The editors are well qualified to make it instructive and useful.—*See Advertisement.*

British writers sometimes make strange blunders when translating or transferring articles from the German, not unfrequently literally *oversetting* them. To make certain microscopic examinations of bees' eggs, Professor Von Siebold, in August, 1855, visited Seebach, where the Baron of Berlepsch had a hundred colonies of bees at his disposal, from which to supply the required material. This simple story is told by the London *Saturday Review* as follows:—

"Herr Von Berlepsch began to note with the microscope the economy of more than a hundred hives, and Professor Siebold brought the trained eye and varied culture of the practiced zoologist to assist in reducing the facts to order and law."

The Baron will be amused at the part assigned to him.

☞Several communications were received too late for this number, and a few others are unavoidably omitted, though earlier in hand.

☞In Mr. Langstroth's article in this number of the Bee Journal, on "Wintering Bees on their Summer Stands," substitute the following for the first and second sentences in the second column on page 72:

"Now right the hive, put strips on the rabbets so as to raise the frames about half an inch from the bottom-board, and lay a piece of corncob sawed to a proper thickness, on the bottom-board parallel with the front entrance and so as to come directly under the front ends of the centre frames, so that the bees will always have a warm and easy access to the central cluster from the bottom-board. By taking off the lower back piece and raising the ventilator, you have the power, in a few moments, of sweeping out every dead bee from the hive. (Where hives with no rear ventilator are in use, the cob should be placed at the back end of the frames, so that the refuse can be cleaned out from the front entrance. The rear outside casing can, in that case, be made of one piece.)"

[For the American Bee Journal.]

The Honey-Emptying Machine.

I regard this invention next in importance to the movable frames, and since using it, I have wondered why some "Yankee" did not invent it years ago.

I have one of my own construction, which works admirably. I think that with this machine and the Langstroth two-story hives, we can get large amounts of honey. This style of hive seems better adapted to this mode of getting surplus honey than any other; for the reason that we are not obliged to disturb the combs in the breeding apartment. No bee-keeper can afford to be without one of these machines.

I would like to inquire of Novice, page 85, of August number, whether the honey is not thin when taken out so soon from the comb after it has once been emptied? It seems to me that it cannot be as thick and rich as when it is left longer, and the water has had time to evaporate from it.

C. B. Biglow.

Perkinsville, Vt., Sept. 1868.

[For the American Bee Journal.]

Ill Tempered Bees not, upon the whole, undesirable.

Since the introduction of the Italian honey bee into northern Europe and America, much has been said and written concerning the comparative temper of the Italian and black races, and that of the hybrids.

It seems to be pretty generally acknowledged that the Italians are, under some circumstances, more gentle than the black race; but that the hybrids are almost invariably more cross than either when pure. Still there are questions about the former statement, and queries about the reason for the latter; and I apprehend it not difficult to give the one key to the fact in both cases.

Admitting that the Italians are natively a more hardy, sprightly, and superior variety, may not the whole secret of difference in temper and comparative superiority lie in "in and in" and "cross" breeding? And may not these two stand more nearly related than has heretofore been supposed?

I believe it to be the case with black bees, that, should an apiary be built up from one stock, and for years no intermixture allowed with any other, the necessary incestuous relationship of this increasing community would have the effect to render them very docile; and this just in proportion as their constitutional vigor deteriorated, until a general decline would wind up the community with moth worms, or some other casualty, in spite of care. This is just what has been acted over and over again, with farmers trying to keep bees from one stock at a distance from other bee stands or apiaries.

And this I believe will be precisely the case with the Italians, only that, being a superior race, they might weather under incestuous relations longer than the black bees. The Italians may probably be much improved, by frequent selections of new queens to breed from, taken from a different locality in Italy, or where pure unrelated queens could be found; particularly if their community was governed by the Köhler or some other efficient process, and stranger affinities constantly sought. But would it not be found that greater peccability of temper will attend the result? I think so; and in proof let me urge the fact that some of the greatest chronicled results in honey gathering have been with the first cross of the two races. These very stocks are noted for being "cross"—that is, they are superior in defending their rights, or, in other words, there is more of the "bee" about them; and perhaps others than myself have noticed that where black bees from different and unrelated—or not much related—sources mingle, the vigor of both seems renewed and their temper quickened. I will far rather have "cross hybrids" than docile "in and in bred" pure Italians, or any quiet—almost run out—black bees that any one can handle. Take the bees whose lightning thrusts, when aroused, will make one jump from every side instanter, and these have the "bee" about them—they will send out the swarms, and store up the honey. At least so I think, and without being too positive in advancing a somewhat new theory. Yet not altogether new, either; for the superiority of mixed races, and—so far as possible—of unrelated breeding, is known to belong to other departments of the animal kingdom. Why exclude it from bee-land? Allow the suggestion that with this theory a value is to be attached to the Köhler process, now perhaps thought of by few—however it may force our best apiarians to put on bee hat and gloves; and teach us that, with rightly bred Italians, even an open hive is not the place to sit on, especially on a cool day, when little honey has been gathered!

J. W. Truesdell.

Warwick, P. Q., Canada, Sept. 9, 1868.

[For the American Bee Journal.]

Italian Bees and Red Clover.

Before I procured the Italian bees, I saw it stated in circulars that they would gather honey quite freely from red clover; but experience has convinced me that this is a mistake. I have several colonies of pure Italians, and this section of country abounds in red clover, and there is but little white clover. I have watched the bees, and have seen only one on red clover this season, and it left it immediately in apparent disgust and disappointment.

P. R. Russell.

Bolton, Mass., Sept. 1868.

Hamburg Brown Honey Cake.

The flour intended for this cake should be well dried and sifted, before being weighed. Then take twelve pounds of flour and twelve pounds of honey; bring the honey to a boiling heat, pour it in the flour, and mix thoroughly. Dissolve two and a half ounces of pearlash in two gills of rose-water, the evening before. Take one pound of butter or lard, two tablespoons full of West India rum, the grated rind of two lemons, the candied or sugar-coated rind of two oranges, and a very small quantity of pounded cloves. The solution of pearlash is to be added when the dough has become cool, and the mass must be thoroughly kneaded.

The dough may be prepared several days in advance of the baking.

Brown Cake.

To four pounds of flour take four pounds of honey, one-half pound of pulverized loaf or lump sugar, one-half ounce of Canella, 3 ounces lard, a small quantity of cloves, one ounce of pearlash, one gill of rose-water, and two spoonsful of rum or French brandy.

The honey and lard are to be incorporated by boiling, and when again cooled off, add the pearlash previously dissolved in the rose-water. Knead the mass well, let it stand several days, and then work it over again very thoroughly.

Some persons prefer to omit the cloves, and substitute for them pounded cardamon seeds, grated lemon peel, or sugar-coated orange peel.

Bardowick. W. Luhman.

[For the American Bee Journal.]

Those "Shallow" Hives again.

Mr. Editor:—I like to see candor and honesty in all things; and when we make a statement concerning anything we should give all the particulars, not a part only, and then leave the reader to draw his own conclusions.

I see in the August number of the Bee Journal, page 40, a communication from Mr. Gallup, which I think smacks a little too much of assertions without proof. Before going further I will say that all the interest I have in the Langstroth hive, is to use it for myself and family.

Mr. Gallup says that he has never "used the shallow things, but has had the care of them for his neighbors," &c. Well, now my case is just the reverse of this. I use the "shallow things" myself, and have care of a good many of my neighbors', and have had for several years. Yet I know of no person that has lost any stocks in consequence of the shape of the hive; though one thing is true of these "shallow things," as well as any that are deeper, and that is, that bees will starve in them if they have not stored enough honey to carry them through the winter. Why did the man mentioned by Mr. Gallup lose six hundred dollars worth of bees in one winter? We are left to draw our own conclusions. Mr. Gallup says it is so, but does not say why it is so. Now I keep bees every winter in the Langstroth hive, in the open air; and when they had stores enough, I have not lost the first stock yet. Last winter I had fifty stocks in those hives, that stood all winter on their summer stands, without even a corn-cob about them, and not one particle of extra protection of any kind; yet I lost only one stock, and that starved to death. Those in the American hive that stood amongst them, did just as well and no better. Again, Mr. Gallup says that he can show "all over the west those shallow things rejected." This is another of his assertions without proof. "All over" means entirely; now I have travelled some in the west, (but not quite "all over" it), and have not seen the first rejected shallow thing, yet my business was amongst bee-keepers. I have transferred a good many stocks, in Illinois, from other hives to Langstroth's; and now have many colonies in Illinois in the Langstroth hive, and winter them in the open air with success. I think Mr. Gallup, in his trip through the west, galloped a little too fast to see all that was going on there. One question, and I am done. Why should we recommend a hive to a new beginner, that an old bee-keeper would reject? Eh! B. Puckett.

Winchester, Ind., Sept. 10.

If you perceive a hive, after it has cast twice, to have some quantity of bees, and yet to work negligently, or not to increase in the spring, suspect them to want a queen, and supply them with one as soon as you can; if no other way, then by driving a poor swarm into them, for which purpose always reserve some.—Purchas.

[For the American Bee Journal.]

How I became an Apiculturist, No. 5.

Mr. Debeauvoys was a good-looking and agreeable man. I was very much pleased with his conversation. He sold me, for the small sum of forty-five cents, a copy of the first edition of his book. His hive is 12 by 13 inches, and 15 inches high, opening at both ends, has an attached sloping roof, and a movable bottom. The eight frames were supported on strips, and prevented from crowding, by a contrivance nearly the same as in the American bee hive. While the swarm was still young, or during the first months after transferring, it was easy to remove or take out the frames, four from each side. But after some months, the operation became difficult, as the frames were warped and the combs crooked. Consequently, I soon became dissatisfied with my new acquisition.

My bee-keeping neighbors, on seeing my continual changes, laughed at me; and instead of believing the teaching I was always ready to impart, used to ridicule me as soon as I would leave.

One of them, a gardener, on hearing me speak of the queen bee, asserted that there are no queens in the hives. They had bees from father to son, and had never seen such a queen. The big or *brooder* bees, as he called the drones, had the function of laying and setting the young. He pitied me for believing in such an absurdity as a queen bee.

One fair morning, while passing near his garden, I heard the sounds of pan and cauldron, announcing as is customary the egress of a swarm. Attracted as by loadstone, I hastened to the spot, and found the gardener in the act of shaking the limb of a medlar tree on which the swarm had clustered. Seeing the queen alight on his shoulder, I at once seized her, pleased to have an opportunity to overcome his incredulity. The man was too much occupied to observe this feat, and I resolved to have some sport with him. Quietly drawing my handkerchief, I gently slipped the queen in a fold and secured her there. The bees, unconscious of their loss, entered the offered hive in great haste. Knowing that the gardener was very proud of his greenhouse, and easily flattered by a notice of it, I spoke to him of his flowers. He readily offered to show me his new pelargoniums, and we hastened away to the conservatory. After spending some time there, I said to him, "Do you look after your swarms after hiving them?" "Oh, yes!" he replied. "Then come," said I, "for I fear everything is not right about your swarm." "Never fear!" rejoined he, "I have hived swarms for more than twenty years, and very rarely have they deserted the hive again. You see all is right; all the bees are already in the hive, for not one can be seen hovering round." "But," said I, "look at the medlar tree! It seems to me that the bees have all returned to the limb from which they were shaken!" "Indeed!" exclaimed he, "that is so; not a bee is in the hive, and yet I had rubbed its inside with sage, knowing that the bees are fond of the odor."

The man immediately ran to his house, and on his return, rubbed the inside of the hive with honey, to make it more attractive to the bees. The swarm was now shaken down anew; but, alas! the hive was hardly inverted over them, when the bees, disregarding the honey charm, rushed forth and took wing again. The man was astounded!

At last, fearing to enfeeble the swarm, as some of the bees were already returning to the parent stock, I showed the queen to the dumbfounded gardener. Then, covering my hand with the handkerchief to keep the bees from entering my sleeve, I gently seized the queen and presented her where most of the bees were hovering. My hand was speedily covered by them; I shook them off in front of the hive, and the swarm was soon quietly established in its new home.

This simple demonstration worked an entire change in the bee-keeper's opinion as to my teachings. After this I was visited nearly every day by bee-keepers seeking counsel, and asking questions as absurd as ignorance could devise.

Some four or five years later, when returning to the city from a neighboring village, an unknown person saluted me by name. Perceiving that I did not know him, he said, "you do not recollect me; but I know you. I shall never forget you, since you taught me some secrets about bees. Since then no apiary in my neighborhood can vie with mine. But do not fear! I shall never tell my neighbors how to know if a swarm is queenless; and how to help it to make a queen! The secrets you imparted to me will be well guarded!" "You are wrong, my friend," I replied, "I told you some of the truths that science teaches us respecting bees, not that you should keep them concealed, but, on the contrary, that you might scatter them everywhere, for the common benefit of all."

I parted with that man, however, doubtless without having convinced him of the propriety of doing to his neighbor as I had done to him. Thus over all old Europe jealousy and rivalry are so intense and prevalent, that elementary knowledge is repressed or kept secret by the more fortunate or more favored possessors; and the Governments countenance and maintain this ignorance, for it is the corner stone of their power.

Ch. Dadant.

Hamilton, Ills.

Bees breed best, saith Aristotle, when they gather most honey; but herein he was deceived, for they gather most honey, according to his own position, when the honey dews fall, which saith he is not *ante vergiliarum ortum*, before the rising of the Pleiads. But we have often swarms, a first, and a second also, out of the same hive before that time. And generally all good hives are furnished with young before that time of the year. Indeed, honey is not the ordinary food for the nymphs, but bee-bread, which from mid March, and in some temperate springs from mid February, they plentifully gather.—Purchas.

[For the American Bee Journal.]

Do Toads Eat Worker Bees?

Some days ago, when carrying several nuclei to my cellar, to test the Köhler process, some worker bees dropped on the sand. A large toad issuing from a dark corner of the cellar, came within an inch and a half of the first bee, stopped a second or two, and the poor bee disappeared down his throat. Then it hastened to the second, which was despatched in the same way. So likewise was the third, and finally the fourth and last. Had I not seen the toad's mouth opened and closed, I should not have known where the bees had gone, so rapid was the motion of the viscous tongue. Seeing there was nothing more now to devour, the toad returned to his dark corner, as gravely as he had come.

That toad is well known to the inmates of my family, having for months cleared the cellar of all flies, spiders, and other insects, and has thus come to be regarded in the light of a friend.

Last year, while digging a trench near my apiary for wintering my bees, we uncovered more than a dozen such toads which had already retired to winter quarters. But if I encounter any this year, I shall destroy them without mercy. I advise other bee-keepers to do the same.

Ch. Dadant.

Hamilton, Ill., Sept. 5, 1868.

☞We doubt whether toads should be thus summarily doomed, without a hearing. They may and probably do "gobble up" a few workers in the course of a summer; but rarely have they a chance to seize any except the crippled, diseased, and disowned, which had better be suddenly consigned to the capacious stomach of a toad, than die a lingering death by starvation. There have been dozens of toads in our apiary, year after year, and we regarded them as beneficial on the whole—ridding the grounds of spiders, millipeds, ants, and various kinds of bugs and larvæ quite as "ugly and venomous," and needing some such natural enemy to prevent their undue increase.

The Imbedded Bees.

The Liverpool, (England), *Advertiser and Times*, of November 24, 1817, contained a long account of three bees being found alive in a huge solid rock from Western Point Quarry. This attracted the attention of scientific men, who made a careful investigation and cleared up the mystery, by discovering a "sand hole" in the rock, through which the insects had made their way.

Vicious Bees.—Two valuable horses belonging to A. B. Butler, near Richmond, Union county, were stung nearly to death on the 28th ult., by thirteen or fourteen swarms of bees, belonging to Reuben Barnet. Mr. Barnet's bees, three or four years ago, killed in this manner thirty hens and one gobbler.—*Ohio Farmer, Sept.* 19, 1868.

[For the American Bee Journal.]

Drone Comb, &c.

All worker comb in the brooding apartment, is just the idea that suits me; and if you can help your readers to get it, by successes or blunders of correspondents, some progress will be made. This is too far north (latitude 45½) for bees to do extra service. My best hive, after taking out two frames of brood to assist a queenless stock, swarmed July 10. As a prime swarm of mine, in Illinois, hived July 3, starved in October, I concluded to make a sure thing of this, and prevent any more late swarms, by taking five combs from three stocks for the new hive, and placing it on the parent stand, removing the old stock to a new location. Placing the empty frames between brood combs, as near the centre as possible, according to Mr. Gallup's directions on page 7 of the July number, I hoped for straight worker comb. As I try to "see my bees often," I noticed the frames were being filled with drone comb; and also that the boxes, where worker comb had been used for guide pieces, were being filled with nice worker comb. So I concluded to try once more, and as the bees commenced building in two or three places on a frame, I put three pieces of worker comb, each, on eight frames, and exchanged them for those just filled in the hives. July 24th, number 4 (the new swarm) had three full combs, two of them all drone size cells and the third about one-fourth worker cells—the rest drone. One comb was full of brood, ten by eighteen inches, about 5,000, and as much more in the other two, making 10,000 young drones started, besides other patches in the old comb—rather too many, to suit me, in one hive. Number 1 had two frames, two-thirds full, all drone size. Number 2, with a young queen that began laying June 21, filled a frame, all drone comb. Number 3, the parent stock, had just started some pieces the size of my hand, drone comb of course. My bees are Italians of the Quinby stock, so it is no wonder they are "behind the times!"

A swarm put in an empty hive builds mostly worker combs. Will the editor give us his opinion as to the number of combs in order to get straight combs, and at the same time to avoid drone comb? I took the combs away twenty or thirty feet, smoked and brushed off the bees into a pan and shook them in front of their hives, giving each its own amount as near as I could guess. They do not appear to quarrel with young bees though these are strangers. I then cut the combs up and put them in surplus boxes, opening what few cells were capped over, and left them in the cellar two nights to kill the brood, before putting the boxes on the hives. Still some drones were recapped, and have since hatched out.

Last year, two black swarms gained four or five pounds each on bass-wood blossoms, weighing twenty-five pounds in August. This year, four Italian hives gained thirty-two pounds each on bass-wood blossoms; weighing sixty-one pounds each, besides the weight of hives and boxes.

H. D. MINER.

WASHINGTON HARBOR, Aug. 15, 1868.

☞Mr. C. F. H. Gravenhorst, a very intelligent, experienced, and successful bee-keeper, of Brunswick, in the late kingdom, now Prussian province, of Hanover, announces that he thinks he has succeeded in constructing a hive, or devising means, by which bees may be constrained to build worker comb exclusively. He promises to make the process known, so soon as he has satisfied himself, by further experiments, that comb building may be thus controlled in other kinds of hives also, and under all circumstances. It is to be hoped he may be successful, as this would be another important advance in practical bee-culture.

[For the American Bee Journal.]

Crooked Combs.

I have two frame hives with bees in them; but it is impossible to get the frames out, without breaking the combs all to pieces. I have tried Mr. May's form of frame. The bees did not build as straight as they did with the triangular bar at the top. When they got about midway, they crossed from one frame to another, and back again. What shall I do?

Does the tulip tree flourish as far north as Maine? Please answer through the JOURNAL.

HORACE LIBBY.

LEWISTOWN, ME.

☞Nuttal says the tulip tree "is unknown in a wild state, east of the Connecticut river, although occurring as far north as latitude 45°, at the southern extremity of Lake Champlain. It is most common, and attains the largest size, in the Middle and especially in the Western States. It delights only in deep, loamy, and extremely fertile soils."

A bee deprived of its antennæ, immediately become dull and listless. It desists from its usual labors, remains at the bottom of the hive, seems attracted only by the light, and takes the first opportunity of quitting the hive, never to return. A queen thus mutilated, ran about without any apparent object, as if in a state of delirium; and was incapable of directing her trunk, with precision, to the food which was offered to her.

It hath been a constant tradition, that the queen bee hath a special guard always waiting on her; and that when she goeth forth, she is always attended by them. I have often seen her go forth, but always without attendance. It may possibly fall out that some bees may go abroad with her, and some others return when she comes back to the hive, but never as her special guard.—PURCHAS.

The enclosure in which bees were kept was formerly called the *bee-croft*, where immense numbers of these insects were housed. In royal inventories we find "honey casks" enumerated in great number. Honey was royal food; hence, perchance, the nursery line:—

"The queen was in the garden, eating bread and honey."

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[For the American Bee Journal.]

Foulbrood.

Important discovery by the medical counsellor, Dr. Preuss, of Dirschau, Prussia. Communicated to the American Bee Journal by

Lina, Baroness of Berlepsch.

This terrible scourge consists in a microscopic fungus, *Cryptococcus alveario*, and may be prevented and eradicated.

The next number of our dear *Bienenzeitung* will publish a most important discovery made by Dr. Preuss, of Dirschau. In order to show my great interest in and kind regard for the American Bee Journal, I will try to treat the subject for its columns.

Even from his childhood Dr. Preuss felt a lively interest in bees and bee-culture, and is himself in possession of an apiary these seventeen years. Nevertheless, though he paid frequent visits to bee-keepers living in the district extending from Dantzig up to Plock in Poland, he never met with foulbrood anywhere until in the year 1866.

In the valley of the Vistula people mostly use the common straw hive. The rearing of bees is rather profitable there, rape, white clover, and wild radish, (jointed charlock), furnishing immense supplies of food. But, though the old hive is still greatly in use, there are also many box hives, and many hives with movable combs, to be found in the environs of Dirschau and Dantzig. Mr. Mannow, of Gütland, a friend of Dr. Preuss, possessed still, two years ago, a splendid apiary, consisting of seventy Berlepsch hives in pavilions. Foulbrood began to show itself in these, but Mr. Mannow, though he mentioned the fact to Dr. Preuss, did not pay any attention to it—a mistake against which other bee-keepers should be emphatically cautioned. When, a short time ago, Dr. Preuss again visited his friend, he was surprised and grieved to see that one-half of the number of colonies were dead, and the rest greatly suffering from this disease. From that day he resolved to make the discovery of the source of this terrible scourge his earnest study; and he has communicated the result of his investigations to the *Bienenzeitung*, and to my husband, Baron Berlepsch.

Dr. Preuss never was a convert to the views of Molitor Mühlfeld, (*Bienenzeitung*, 1868, No. 8), who considers an ichneumon-fly to be the cause of the disease. He says he could never yet, even with the microscope, find an ichneumon-fly, its eggs or larvæ, either in the cells of the combs or in the hives themselves. The observation of Dr. Assmuss (see Von Berlepsch, "Die Biene und die Bienenzucht," 1860, page 137), that the larva of the *Phora incrassata* causes foulbrood, is likewise regarded as unfounded by Dr. Preuss.

The foulbroody substance has, as is generally known, a viscous, pappy, yeast-like appearance, and a most offensive odor.

In order to make the required microscopic examinations, it is necessary to employ a microscope with a magnifying power of at least from 200 to 400. The splendid instrument used by Dr. Preuss is by Brunner, of Paris, and he makes his observations with a power of 600. Its micrometer allows of measurements to 1-10,000 millimeter, or 1-20,000 of a line.

The next requisite is to work neatly, and with the smallest possible quantity of material. It would be best too if, instead of the light of the sun, that simply of the clear blue sky were thrown on the metallic reflector. A quiet room, unaffected by passing vehicles, and a firmly fixed table, are also required. The microscope itself must be set on a horizontal level. Most beginners put too large a quantity of material on the object-bearer. The celebrated Professor Ehrenberg, of Berlin, always cautioned his pupils against this mistake. If you take too large a quantity, you cannot possibly see anything but a chaotic mass.

Having adjusted the instrument perfectly, you dip a clean knitting needle, or a thin glass stick into a diseased cell and put a particle of the size of a grain of sand on a perfectly faultless glass plate, which has first been most carefully cleaned with a piece of soft leather. A particle of the size of a grain of millet would already be too large. This accomplished, you dip another little glass stick into freshly distilled water, or into water collected in a clean china dish; for if the water to be used is not perfectly fresh, it will be impregnated with various organic substances, and the observations be consequently unreliable. Pump water deposits crystals, and is therefore not to be used.

Of this absolutely pure water put a drop of the size of a grain of millet on the foulbroody substance mentioned above, in order to let this diffuse itself therein; cover it with a small glass plate not thicker than a poppy leaf; and you have a preparation with which frequent and careful observations may be made. Placing it under the microscope, you will see thousands of dust-like corpuscles, which every micologist will recognize as fungi. They belong to the species *Cryptococcus* (Kützing).

Should any one of the above-mentioned preliminaries have been neglected, the fungi will not be seen separately, and of course no proper observations can be made. When the corpuscles seen are of different sizes, the larger ones are globules of fat, remains of the chrysalis, and only the smaller dust-like corpuscles are fungi.

The foulbrood fungus, which Dr. Preuss names *Cryptococcus alveario*, belongs to the smaller species of fungi. It is round, dust-like, and has a diameter of 1-500 millimeter, 1-1,095-line. Thus 1,095 fungi find place on a Rhenish line, and on a line square, 1,095x1,095, that is, 1,199,825, or in round numbers 1,200,000 fungi. Hence a cubic line would contain 1,400,000,000,000 fungi. One cubic inch is equal to 1,728 cubic lines, and consequently a cubic inch of foulbrood substance contains 2,488,320,000,000,000 foulbrood fungi Now if you take into consideration, further, that a cubic inch of comb contains fifty cells, it shows that each cell contains 49,766,400,000,000, or, in round numbers, fifty billions of fungi; or if one-fifth be allowed for wax, still forty billions of fungi.

This enormous capacity of increase is the reason why these fungi are so exceedingly dangerous. It is the same with the fungi of the cholera, typhus fever, small pox, &c. In itself the foulbrood fungus is as little poisonous as any luxuriant weed—it simply supplants that which we desire should live and thrive.

The closest affinity subsists between the foulbrood fungus and the fermentation fungus, *Cryptococcus fermentum*. The latter transforms the fermentable fluids by its rankness, and secerns itself as yeast, after having consumed every particle serviceable to its own growth. Beer and wine yeast are therefore but a conglomerate of billions of microscopic fungi.

If the question regarding the substance of foulbrood is fairly stated, everything else is but its simple consequence. Of course the disease is infectious, and easily transmissible. As long as the substance lies in pap-like form sealed in the cells, it is perhaps least infectious. But when it dries up and hangs like a black crust on the sides of the cells, or falls to the bottom of the hive, billions of seed-spores are scattered. They attach themselves to the feet of the bees, get into the cells containing young brood, are carried to the flowers, and spread the disease in every direction in a thousand ways.

It is a well-known fact that, not the larva but the sealed up chrysalis is destroyed by the foulbrood. The fungus, however, is already in the larva, but in comparatively small numbers, and cannot do it harm. Some thousands of fungi are not of power sufficient to destroy. Thus the six days' life of the larva are passed; it still lives, but the germ of death is there already. The chrysalis is killed by the enormous increase of the fungi, and the latter luxuriate, even after the death of the animal, till this is entirely consumed and transformed into its own substance. The marked distinction made by Dzierzon between innocuous and malignant foulbrood, is therefore to be understood as stating that the death of the larvæ in the former case is attributable to some other cause; but the destruction of the chrysalis in the latter is due directly to the foulbrood fungus.

As to the origin of foulbrood, we have observed that the foulbrood fungus and the fermentation fungus belong to the same species. It is known, besides, that fungi—microscopic especially—undergo some change, or pass into each other, when getting on different ground. It is therefore not improbable that *Cryptococcus fermentum* changes into *Cryptococcus alveario*, if it happens to get on, or, by feeding, into the body of the larvæ—influenced also, perhaps, by certain states of temperature or humidity.

All bee cultivators concur in the opinion that feeding fermenting honey is a principal cause of foulbrood. Well, the fermentation of honey is caused if, when in getting it, people do not pay the strictest attention to removing and excluding from it every particle of brood, whether sealed up or not. If that be neglected, the honey will contain albumen, and may consequently not safely be used for feeding. Thus it is of great importance to be very careful in feeding. The fermentation fungus is to be found in countless sporules almost everywhere in nature; therefore it is not necessary that it be introduced *en masse* by fermenting fluids. It suffices to give it congenial soil wherein to spread. Dead larvæ or chrysalids are particularly adapted thereto. Brood dieing from any other cause, would probably give rise to foulbrood, if it remain any length of time in the hive. Changing the places of hives, and causing thereby too great a loss of bees, so that the young brood can no longer be duly warmed and fed, may generate foulbrood. Artificial swarming may also cause the disease, if the number of the bees is too small in proportion to the brood, because the latter easily becomes chilled, and perishes. Dr. Preuss recommends a mode of heating hives containing new swarms, (Ableger), by means of bottles filled with hot water.

Great care is to be taken, moreover, that all dead brood, particularly if sealed up, is removed from the hive as soon as possible. It should even be buried, because the fungi luxuriating on it already would rapidly multiply in the open air. Dead bees should never be emptied out in the vicinity of an apiary—they being the richest food for the fungi. As a human corpse, if not buried, would poison the atmosphere of a whole town, and cause the deadliest epidemics, so putrifying bees might poison an entire apiary.

Supposing the disease has already taken ground the next question is, what is to be done to remove it? First of all it must not be neglected, but treated as promptly as a case of glanders in a horse. Of course every kind of food liable to fermentation is eminently dangerous and absolutely interdicted. *There is no physic to destroy the fungus of the foulbrood!* This it is important to know, because it prevents loss of time in quackery. If there is no physic available against the disease, the old maxim of Hippocrates is to be taken into favorable consideration:—"quæ medicamenta non sanant, ferrum sanat; quæ ferrum non sanat, ignis sanat." Iron ought therefore to be the first remedy resorted to. Every hive should be most carefully examined and every diseased cell cut out. If that prove fruitless, have resource promptly to fire. Do not spare your apiary; burn every comb that shows the least sign of foulbrood, for fire alone is able to destroy the dangerous fungi. Sound combs are to be transferred to clean hives; though it is not absolutely necessary to burn the infected ones. If they be washed, inside and outside, with diluted sulphuric acid—one pound to ten pounds of water—and rinsed thoroughly with boiling water, the fungi are sure to be destroyed. It would also be well to put the hives in a baker's oven, and leave them there several hours, in a degree of heat equal to that of boiling water. The same result would be attained too, by placing them for some days in a room heated to 122 degrees of Fahrenheit. The heat would penetrate every crevice and destroy the fungi.

When Dr. Preuss was a medical student in Berlin, thirty-five years ago, the Hospital of Charity there was visited, in a most alarming manner, by puerperal fever and hospital-gangrene. Lying-in women and persons suffering from wounds or abscesses sunk quickly under these attacks. There was no remedy, and every precaution was ineffectual. At last all the sick were removed, and the rooms heated for weeks to 122 degrees Farenheit. When the patients were then brought in again, the diseases had entirely disappeared. Probably some noxious fungus had been destroyed by the heat.

The ground floor of the apiary should also be frequently sprinkled with dilute sulphuric acid, and the ground spaded up. A better plan, if practicable, would be to remove the apiary to some other spot, after having thoroughly cleaned the hives. This done, Dr. Preuss thinks that infection by the bees themselves need not be apprehended. He advises therefore to kill them only in the last resort, if there is no other remedy remaining. The middle of June he considers the best time to place them into cleaned or new hives, because they would then still be able to build combs and supply themselves with honey for the ensuing winter. It ought however to be done simultaneously throughout the apiary, or the diseased stocks may again infest the sound ones. The next duty is to visit the stocks regularly, and remove every infected comb, if any be found. Then, and then only, will it be possible to eradicate the disease.

As great physicians discover the required treatment of diseases, before ascertaining their precise nature and origin, so *Dzierzon* and *Berlepsch* gave most of the rules mentioned above, without being sure of the substance of foulbrood. They advised particularly not to resort to quackery; and that counsel cannot be too emphatically impressed on the bee-keeper.

Dr. Preuss is confident that a careful observance of his prescriptions will eradicate and cure foulbrood.

Baron Berlepsch considers the discovery of Dr. Preuss one of great importance; and I accordingly tried to treat the subject in a foreign language, for the benefit of the glorious insect and all its friends and cultivators. I am proud to give the first notice of the discovery to America, hoping and trusting that my friendly attempt will be understood and appreciated.

LINA, BARONESS BERLEPSCH.

COBURG, Sept. 14, 1868.

[Communicated for the American Bee Journal].

From Italy.

My esteemed friend, Mr. Charles Dadaut, of Hamilton, Illinois, has communicated to me translations of several articles selected from the AMERICAN BEE JOURNAL, which I read with great interest. In return, allow me to send some brief comments and remarks on Italian bee-culture.

I learn with much gratification, from the articles received, that Young America is striving to advance beyond other nations, in bee-culture, as well as in general progress and civilization; and we may surely ascribe a portion of this to the AMERICAN BEE JOURNAL, which by its excellent communications and selections awakens and stimulates a more active interest among bee-keepers.

I sincerely wish that as much could be said of Italy, in these respects. But, alas, bee culture is still greatly in arrear in this country. Most bee-keepers have still no idea of the great advance made latterly in other countries, nor any conception of an improved system of bee-culture, founded on a rational mode of management. With few exceptions, they pay no attention to their bees, except during the swarming season, when the swarms are hived in gums or plain boxes, which are commonly set in some spot where, without shelter or protection, they are exposed to the scorching rays of the noonday sun, and simply consigned to the care of Providence. In autumn, the swarms of the previous season, containing the old queens, are reserved for wintering; and frequently very superior parent stocks, containing the young queens, are doomed to the brimstone pit. Then, too, it not unfrequently happens that the owner of an apiary finds many of the hives from which he expected abundant returns entirely bare of honey; and in not a few of them neither honey nor bees, nor aught besides a dark and chaotic filmy mass and black *excreta* on the bottom-board, with an array of empty cocoons in close ranks on the inner top and sides of the hive—furnishing ocular demonstration of the fate of the colony. The owner looks on dismayed, lamenting the precariousness of bee-culture, which flourishes surprisingly one year and fails altogether in another.

But even here the dawn of a better day is approaching. Several bee-keepers' associations have already been organized, as, for instance, in Milan and Verona. These are endeavoring to introduce a rational system of bee-culture, on Dzierzon principles, and hold frequent meetings, at which instructive addresses and lectures are delivered. They also have a constant supply of movable comb hives manufactured and for sale. The bee journal, *l'Apicoltore*, published in Milan, and edited by the Marquis Balsamo-Crivelli, deserves to be particularly mentioned in this connection.

As regards climate and honey resources, Italy and the Italian cantons of Switzerland, possess all that could be desired for successful bee-culture. The season commonly commences early in the spring, and continues till late in the fall. This, with the advantage of the superior race of yellow bees, makes this region a very Eldorado for the apiarian. There is only one drawback to be named, and that is that the honey is not uniformly of good quality, most of it being inferior to that procured in more northerly countries. This results from the diversity of the prevalent pasturage. The honey gathered in the spring from meadow flowers, rape, clover, and the blossoms of fruit trees, is fine, having a clear amber color, and an aromatic flavor. Then follows an abundant supply from the blossoms of the chestnut trees, which is of an inferior quality, darker in color, and of a harsher taste. That gathered in July is finer again, being derived from meadow flowers. Finally, in August and September, there comes in an abundant supply from the buckwheat fields and the heathery wastes, which is of inferior quality and little esteemed; and therewith the season ends. Well, we cannot have all things at once. Where the sources of supply are so ample, numerous, and continuous, much of the honey may indeed be of inferior quality, yet bee-culture be a profitable business still.

The current year has been less favorable to bee-culture than any of the three preceeding. The spring was late and cold; then followed a long continued severe drouth; and now we have excessive rains. All this restricted the production of honey.

I close with a cordial greeting to all American bee-keepers.

DR. BLUMHOF.

BIASCA, CANTON TESSIN, Aug. 21, 1868.

☞Dr. Blumhof, the writer of the foregoing, as many of our readers are aware, is the originator and proprietor of an extensive establishment at Biasco, for rearing Italian queens, where the business is prosecuted systematically, with great judgment and skill.

A popular colony will survive injurious treatment, which would speedily cause the destruction of a weak one.

From England.

[For the American Bee Journal.]

Superiority of Ligurian Bees.

The clever German bee-master, the Baron von Berlepsch, states, "that he had never known a queen of the current year to send off a swarm."

The following facts prove that a queen of the current year does sometimes send off a virgin or maiden swarm, but it is a rare occurrence, and I never heard of a second swarm of English, or common black bees, sending out two virgin swarms, in this country.

In May, 1866, I sent a stock of pure Ligurian bees to a clergyman in Essex, and it threw off three swarms. The first swarm sent out only one virgin swarm; but the second swarm, with the queen of the current year, sent out two virgin swarms. So this one stock that year increased to seven.

Another stock of Ligurian bees, sent out at the same time to the neighborhood of Liverpool, also increased to seven; but in this case the old stock, in a glass observatory hive, sent out four swarms, and the first swarm sent out two virgin swarms. The old stock, after throwing off four swarms, got so crowded again with bees that they hung out in a large cluster, and it was thought they would swarm again; to prevent which a large super was put on the hive, which they nearly filled with combs and honey.

Before the introduction of the Ligurian bee into England, such an increase as two stocks of bees to fourteen in one year, all with natural swarming, was never heard of.

Another swarm, of last year, that I sold to a friend, sent out four swarms, all in May of the present year. The fourth swarm, with a queen of the current year, sent out a large virgin swarm on the 12th of July. Since then I have not heard from their owner. What a wonderful contrast this is, with the common English bees, both in this country and America, as I know several large apiaries that have not sent out a single swarm this remarkably dry summer.

WILLIAM CARR.
NEWTON HEATH,
NEAR MANCHESTER, ENGLAND.

Smoke is very offensive to bees; therefore let not their hives stand near a brickkiln, limekiln, or brewhouse, or where any long continuing smoke may beat down upon them.—PURCHAS.

In Hampshire, England, there is said to be a superstition prevalent, that bees are idle or unproductive, and unfortunate at their work, whenever there are wars.

The *hum of bees* is called *drowsy* by Shakpeare; by others it is described as *sedative* and *soothing*; and others again call it *cheerful* and *merry*.

[For the American Bee Journal.]

Fertile Workers once more.

Mr. J. N. Clarke wishes to know how I am certain that the fertile workers, referred to by me in the March number of the JOURNAL, never had been fed royal food. (See BEE JOURNAL, volume 3, page 229). I supposed the article referred to was sufficiently plain to be understood, but I will try and be more explicit. A queenless colony will rear one or more queens from any eggs or young worker larvæ found in the hive in worker comb, by enlarging the cell, or cells, changing their position, and feeding the larvæ an extra quantity, and, writers assert, a different quality of food. This food is called *royal* food; is said to be compounded and used exclusively for royalty, and never used in the hive except when the workers are feeding a queen, or queens in embryo. It is said that this food, that is, the kind of food, has an influence on the development of the several organs of the female bee. The idea advanced by the advocates of the fertile worker theory, is this, that in the distribution of this food some portion of it is given to worker larvæ in cells adjoining queen cells, thereby producing the partial development of the generative organs of such worker. By referring to the article in the March number of the JOURNAL, it will be seen that the fertile workers were taken in the month of May, from hives from which no swarms had issued since the preceding July. It was late in June when these workers became fertile, consequently, if they had been fed royal food in the vicinity of a queen's cradle, they must have been nearly or quite eleven months old when they became fertile. I had several of them, taken from several hives, and it is not at all probable that the young queens were lost after they had become fertile, and new ones reared in all of them after swarms had ceased issuing, or later than July. My experience in changing colonies of native bees to Italians, by introducing Italian queens to such colonies, is altogether against the worker bee's living to exceed nine months, under ordinary circumstances, even with the winter months included. If an Italian queen is introduced to a colony of native bees in May, June, or the fore part of July, the last of the natives will have disappeared in about ninety days. If the colony is broodless when she is introduced, they will all be gone in about seventy days after her introduction. If she is introduced as late in the season as October, perhaps a few of the black workers will be alive the first of June following, but the number will be exceedingly small, and they will very soon disappear. I might relate numerous instances to prove that such is the case, but it would be superfluous, as I think every reader of the JOURNAL, who has introduced Italian queens to stocks of black bees and watched the result, will sustain me in the above assertions. If my observations and the inferences drawn from them are correct, we must either admit that royal food is used in the hive at other times than when queens are being reared, and in that case it ceases to be exclusively royal food, or we must look elsewhere than to the royal food for a cause of fertility in workers. But it may be said that my conclusions may be incorrect, that as are in part at least guess work. For the sake of the argument, admit it; and what is the fertile worker theory but guess work? Under certain circumstances the workers in a hive will select a worker larva and change it, from what would otherwise have produced an imperfect female or worker, to a perfect female or queen. We *guess* that this change is effected, in part at least, by the quality of the food consumed by the larva. Under certain other circumstances we have fertile workers, and we *guess* that they must have been reared in the vicinity of a queen's cradle, and have received a portion of this food. Here is not only guess work, but guess work founded on guess work. Strictly speaking, it should hardly be called a theory at all, as it has more of the character of a mere hypothesis, "a proposition assumed to account for a certain phenomena, having no other evidence for its truth than that it affords an explanation of such phenomena." As before stated, we are sometimes hasty in our conclusions. A neighboring bee-keeper once told me the worst trouble he had with black drones, in Italianizing his apiary, was with those from fertile workers. He took workers from native stocks and supplied them with brood from his Italian queen. If they failed to raise a queen, fertile workers soon made their appearance. He claimed that these workers were reared in his queen rearing hive, and had been dosed with food intended for royalty. He entirely overlooked the fact that if the brood given them was pure, not only the fertile workers reared from this brood, but the drones from such workers, would also be pure and would make him no trouble whatever. Again, we will take, if you please, the Varronian theory, as given in the JOURNAL, volume 3, page 147. The Professor held that this royal food consisted in part of fertilized eggs, laid by a fertile queen; and in proof of his position he says, in substance, that a queen cannot be produced from a single egg that will ever lay eggs at all. Mr. Quinby tells us a queen may be reared without being fed eggs at all. Mr. Quinby is correct. If Professor Varro, before advancing his theory, had taken a small piece of worker comb containing young larvæ only—no eggs—and given it to a queenless and broodless colony and noted the result, his theory would not have been penned, or at least it would have been somewhat modified or changed.

My object in introducing this question was, not to debate or argue it at all, but to stimulate, excite to investigation and experimenting on the part of others; and if possible ascertain some positive fact, something aside from mere guess work, in proof of either the truth or falsity of the position assumed.

J. H. TOWNLEY.

TOMPKINS, MICH., Sept. 8, 1868.

A large prime swarm carries with it three or four pounds of honey, when leaving the parent hive.

[For the American Bee Journal.]

J. M. Price's Movable Comb, Square Frame, Double Cased Bee Hive.

Mr. Editor:—I wish to introduce to the notice of bee-keepers a hive which I have invented and have in use, and which is not patented, but free to all. I send you a model, drawing, and description, The model is not a sample of workmanship, but a good specimen of the hive as it is actually in use. It is an exact representation of the hive in miniature. It is well proportioned inside and out. I can use it as well as my Langstroths; and as a hive for farmers' use, I think it preferable. At first glance it looks as if it would cost more and take more lumber than the Langstroth; but a hive of the dimensions I make them takes just as much lumber as a two-story Langstroth, and not more—that is, two of his standard hives, one on top of the other. The relative capacity of each is as follows: A two-story Langstroth, with twenty frames, each 16 by 8½ inches is 2,720 square inches. Mine, with sixteen frames, as per dimensions, is just 2,208 square inches; and by using two frames in summer instead of the end boards number 20, for the inside covers, 8 and 9, to rest on, the capacity is 2,638 square inches. So you see its cost, in proportion to its capacity, is not as much as that of the other. The frame, in actual use, hangs as true and just as firm.

With the use of the honey-emptying machine, the day of surplus honey boxes has passed away. My machine holds just four of my frames. I have not tried it yet, as we have had a drought here so that for seven weeks the bees hardly left their hives, and in most of them they have used up the greater portion of their honey. I am told that, in the country around here, many of the young swarms put into box hives, have starved or dwindled away to nothing. Bees are doing better now. Most of them are getting as much honey as they consume.

By setting the boards number 20, half an inch from the sides, all you have to do when you want to take out a frame is to sever the connections that bees always make between the frame and side, and take out the board. Then you have a two-inch space to move frames sideways, and so get at any frame without taking any out of the hive, as you do with other hives. That American hive, (King's), having to take out nine to get at the tenth, would be poison to me.

The hive which I now introduce to notice, fills a place so far not filled by any other hive now before the public. It is simple in all its details, and free from all humbug. It is easily made by anyone who can use the tools commonly found on a farm. It is cool in summer and warm in winter, and can in a moment be made so suit any colony, large or small. It has all the advantages claimed for any hive, and one peculiar to itself. It will bear comparison with any; and it meets the wants of settlers on our western prairies, who, to keep bees, cannot afford to build expensive winter quarters for a few colonies, but who would still like to keep a few for family use, yet dare not do it now, as it is certain death to attempt to winter them on our cold, bleak, and windy prairies. This hive is most thoroughly protected from the weather, and the interior is easily and quickly reached, to perform any operation with bees; and it may be used with or without frames. Last winter the mercury of the thermometer, placed between the packing and the inclined top of the inner hive, stood at 65°, while outside the mercury was at zero. I examined it several times a day for nearly a month. The mercury ranged from 5° degrees below to 35° above zero outside, while inside the mercury varied only one or two degrees—showing that the temperature of the inner hive did not sympathize with the outside variations.

Profitable bee-keeping depends on the safe wintering of bees; and I believe all acknowledge that if that could be done successfully on their summer stands, it would be the best way. Writers in the Bee Journal and nearly all patentees are now striving for that point. This hive secures their safety more than any with which I am acquainted, and my neighbors and myself have thirty-seven of them in successful operation.

On the front entrance it is protected by the boards 1, 5, 6, 10, and the dead air spaces 18 and 19; on the rear lower side by the boards 1, 2, 3, and the dead air space 17; and on the top by the boards 2, 8, 9, 11, 13, and the dead air space 16. The space between the inner covers 8 and 9, and the top 13, is to be filled with straw, chaff, or saw dust in winter, or with rags. The space that is filled with straw in winter can be filled with boxes for surplus honey in summer; but as there is room for sixteen frames in the body of the hive, I think such boxes can be dispensed with, by occasionally removing two or three of the frames when filled and substituting empty ones for them.

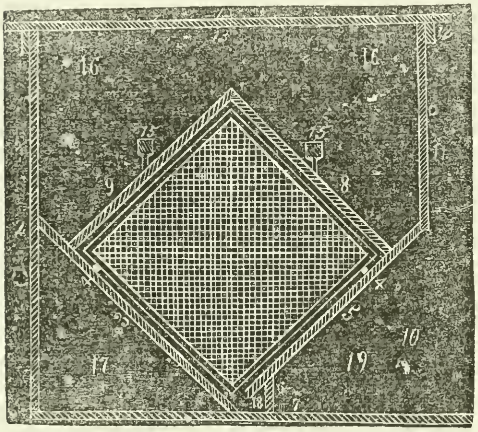
Two straw cushions are to be placed, in winter, between the sides of the hive and the square movable sides, 20, of the inner hive, on which the covers, 8 and 9, of the inner hive rest, and which keeps them from touching the frames and forms the space between 14 and 8 and 9. Thus, it will be seen, it has thorough protection.

The cost of the hive, including paint, which I make myself, and nails, does not exceed two dollars. Any person wanting further information, can obtain it by enclosing to me a postage stamp or a directed stamped envelope.

Dimensions of the Hive.

1. Bottom of outer hive, 24 by 30 inches.
2. Back of outer hive, 24 by 24 inches.
3. Back of inner hive, 18 by 22 inches.
4. Strips for frames to rest on, 1 by ½ and 22 inches.
5. Front of inner hive, 16 by 22 inches.
6. Movable front of hive, 4 by 22 inches, with fly-hole,
7. Block, to make fly-hole large or small.
8. Cover of inner hive, 14½ by 21½ inches.
9. Cover of inner hive, 13½ by 21½ inches.
10. Movable front of hive, for winter, 24 by 8 inches.
11. Front of hive, 16 by 24 inches.

12. Edge for cover to fit around the top of hive 3½ inches wide.
13 Cover of hive, 30 by 32 inches.
14. Frames—strips cut 12 inches by $\frac{7}{8}$ and $\frac{3}{4}$ of an inch thick.
15. Bee-feeder and waterer, for description of which see July and August numbers of AMERICAN BEE JOURNAL.
16. Dead air space, to be filled in with straw, chaff, saw dust, or rags.
17. Dead air space.
18. Dead air space.
19. Dead air space, in winter, and covered portico in summer, forming the most complete alighting board for the bees.
20. Two square boards, movable, for inside covers to rest on, 13 by 13 inches.
21. The two sides of the outer hive, 24 by 24 inches.



By simply making number 20 15½ inches square, and the covers, 8 and 9, 13 by 17 inches wide, the hive will accommodate frames 15 inches square. Or by making number 20 6, 8, or 10 inches square, and the covers 8 and 9 in proportions to fit, any size hive holding sixteen frames can be made. Or the hive can be made to hold any number of frames of the above sizes. By simply moving the movable sides, number 20, from the sides inward, it will make the capacity of the hive from one to sixteen frames, either way, without the alteration or destruction of any part. The hive can be made to suit the taste of all in regard to size; though I think it would be best to use small frames by those who want their surplus honey in boxes;* and large ones by those who use the honey-emptying machine.† The hive can also be readily adapted to large or small colonies; and as small colonies increase in strength, the hive can be gradually enlarged to its full capacity. Again, the form of the bottom of the hive being the shape of the letter V, open at the bottom from side to side, all droppings of wax and dirt of every description falls clear of the hive, leaving the hive at all times clean and sweet. Thus there being no accumulation of dirt or pieces of wax on the bottom of the hive, there is no temptation or chance for the moth to lay her eggs—securing the hive against becoming a snug harbor for the bee-moth and worms.

To manage bees in my hive, see article, "How to ventilate, so as to save all the wax," by Mr. E. Gallup, page 8 of volume 4, AMERICAN BEE JOURNAL.

How to combine natural and artificial swarming, see article on "Pure Fertilization," page 3, volume 4, AMERICAN BEE JOURNAL, by Mr. Köhler.

JOHN M. PRICE.

BUFFALO GROVE, IOWA.

*Instead of using surplus honey boxes, bore holes in the movable sides number 20, place them towards the centre, so as to leave four frames on each side and eight in the middle for breeding purposes—thus making side surplus honey boxes.

†NOVICE, page 35, BEE JOURNAL, number 2, volume 4, says of the advantages of honey-emptying machines:—"We can take the honey out of the combs, with brood in it in all its stages, sealed or unsealed, by turning with the proper speed, without injuring the brood at all" Further, he says:—"We took out in all 163 pounds of honey up to July 13, (about one month), from one swarm." It will pay to have a honey-emptying machine for even one swarm of bees; and it will pay those who want to get the most profit from their bees, to subscribe for the AMERICAN BEE JOURNAL and read it carefully. J. M. P.

[For the American Bee Journal.]

Alsike Clover Again.

MR. EDITOR:—There being a good deal of talk in your paper about the Alsike clover, I will give you my experience in the matter, which may be of use to some who contemplate sending for seed.

I sent to Mr. Thomas, of Brooklin, Canada West, last spring, for one peck of the seed. His price was $4,50. This, of course, was to be paid in gold. Canadian express charge, custom-house duty, $1.50 in gold. All summed up, it cost me in currency $13.18. And then it was detained at the custom-house, to go through with a system of "red tape," so that it was twenty-six days on the way, when it ought to have come in three, making it too late in the season for success, as it arrived on the 3d of May.

However, I had a piece of good fresh ground on which I thought I would risk it. But dry weather setting in soon after, and continuing through the summer, my clover is a total failure.

I let my friend Mr. George Buckles, (who is a devoted apiarian,) have part of the seed. His success is just equal to mine.

I fear the tulip tree, spoken of in the last BEE JOURNAL, is too long coming to a blooming age to suit Young America.

With us, this has been the poorest honey season ever known. J. W. HUNTER.

PIQUA, OHIO, September 6.

Strong colonies consume proportionally much less honey during the winter than weak ones.

[For the American Bee Journal.]

Non-Swarmers.

From experiments thus far, I think we may generally guard against the issue of swarms, and so construct our hives that the whole force shall be engaged in securing surplus honey in boxes, except the necessary stores for breeding and for winter's use; and then secure the issue of natural swarms when desirable.

Last season I had one Italian colony in a hive with boxes of about the aggregate capacity of 125 pounds. Its product was two swarms and 106 pounds of surplus honey. One colony of native bees gave two swarms, and with its swarms produced 97 pounds of surplus honey. Two colonies of natives, in hives of similar construction, gave no swarm, and gave 297 pounds of surplus honey. Last season I took ten hives to an apiarian a few miles distant, and had swarms of Italians placed in them. Four of the ten were of larger capacity in box room. Three of them of about 150 pounds capacity each, and one with twenty-seven boxes of nearly 200 pounds capacity. In one of these a very small swarm was placed, and only half filled its central apartment. It has now its central apartment filled; ten boxes nearly filled; and has commenced in two others; probably about 70 pounds. A second has thirteen boxes filled, except a little finishing out and capping a few of the combs; probably 100 pounds. A third has fifteen boxes about completed, and commenced in two others; probably about 120 pounds. A fourth hive is larger, receiving twenty-seven boxes, of an average capacity of nearly seven pounds. This colony has fourteen boxes full, five in which they are working, and only one empty, in which so many bees show themselves as to indicate operations soon. They have probably 150 pounds of surplus honey already.

The fifth colony was so weak in the spring, that I feared they would not survive; but they have now filled their central apartment, and just commenced in the boxes.

The old Italian colony has given two swarms. I think the four described, had they only had the box room of that, would have swarmed. Does not their contented, continued, and successful labor indicate that, with sufficient and acceptable room, they would be likely to go through the season without swarming? And may not swarming in very large hives, be sometimes the result of anticipated want of room, from the product of a very prolific queen? JASPER HAZEN.

According to the Baron of Berlepsch, three thousand drones consume as much honey as nine thousand three hundred and seventy-five workers.

Baron Ehrenfels states that when pasturage abounded and the weather was favorable, many of his strong colonies increased daily more than ten pounds each in weight.

[From The London Gardeners' Chronicle.]

Fighting Bees.

I had a hive of bees given me in the autumn of 1866, but in consequence of the severe winter by which many hives were destroyed, I had no swarm in 1867. The stock, however, grew strong, and filled a glass with honey.

This summer, however, instead of swarming, as I expected, the bees fight so savagely that the ground is covered with the slain; and this has continued for some time. I thought at first that my bees were defending themselves against robbers; but I am now convinced that this is not the case. It seems as if they took this method of thinning their over-crowded hive. Can you kindly give me any advice in the matter? I suppose there is no method to induce them to swarm peaceably, and thus cease their destructive civil war. E. C. B.

On this singular case, the *Gardeners' Chronicle* has the following remarks:—"Are you quite certain that the bees really do fight among themselves; or is it only the dragging away of deceased bees by their stronger companions? We have known many instances in which their apparent slaughter has been attributed to fighting, but have in some cases found that it proceeded from the bees being attacked by a disease analogous to dropsy. The affected ones are pulled out and cast forth by the healthy. It has also occurred under our notice, in this and other cases, that from some mysterious cause, a large proportion of the young brood was hatched out with defective wings, or was otherwise immature or malformed. We do not believe at all in the theory of their fighting for the purpose of reducing their redundant population."

Whoever intends to erect an apiary, if inexperienced, should purchase hives towards the close of the year, and such only as are full of combs and stocked with a sufficiency of honey and bees. In order to ascertain the age of hives, it should be remarked that the combs of the last year are white, while those of the former year are dark yellow. When the combs are black, the hive should be rejected, as too old and liable to inroads of vermin.—*Willich's Encyclopedia.*

Baron Berlepsch says second swarms do not send out scouts in search of suitable quarters for their permanent residence, till after they have issued and clustered.

A strong colony, when honey is plentifully gathered, can build seventy-two square inches of comb, containing four thousand cells, in the course of twenty-four hours.

Bees begin to build their combs at the inner top or ceiling of their hive, and build downwards; though they can also build upwards, when circumstances require it.

[From the (London) Gardener's Chronicle.]

Dark Honey.—Honey Dew.

I have taken off some honey comb in two supers, of a particularly dark color; the honey being nearly as black as ink, and having a peculiar taste. I am inclined to attribute this to honey dew, which was very abundant about a fortnight previously; and which being deposited principally on the lime tree leaves, that had become thoroughly ingrained with soot, was the cause of the very dark color of the honey stored in the supers.

I may add that several of my apiarian neighbors have had to complain of the same peculiarity in the color and taste of their honey taken at the same period.

On the 22d ult., however, we had a heavy thunder storm, since which the bees have been very busy, collecting large quantities of honey. One hive increased in weight to the extent of 5 lbs. 10 oz. in the course of twenty-four hours. This supply, I have no doubt, was obtained chiefly from honey dew on the sycamore trees; and I am pleased to observe that it is of a bright pale yellow color—a great contrast to that previously obtained. We have usually prided ourselves on the beautiful pale, almost transparent, color of our honey; and were both astonished and disappointed on discovering the quality and appearance of that taken by us this year.

D. D.

[For the American Bee Journal.]

Honey Substitute.

Would not the candy, made as recommended by Mr. Langstroth in his book on "*The Hive and the Honey-Bee*," page 272 of third edition, answer the desired purpose? He says the Rev. Mr. Weigel, of Silesia, recommends plain sugar-candy as a substitute for liquid honey. Four pounds of candy will, it is said, sustain a colony having scarcely any winter stores, if they are supplied with water.

To make the candy for bee-feed, add water to the sugar, and clarify the syrup with eggs. Put about a teaspoonful of cream of tartar to twenty pounds of sugar, and boil until the water is sufficiently evaporated. To know when it is done, dip your finger first into cold water, and then into the syrup. If what adheres is brittle when chewed, it is boiled enough. Pour it into shallow pans, slightly greased, and when cold, break it into pieces of suitable size. After boiling, balm or any other flavor agreeable to bees, may be put into the syrup.

To supply the water with the least trouble to yourself and bees, provide bee-feeders, made as described by me in the July and September numbers of the BEE JOURNAL. If those having bees will read Mr. Langstroth's book carefully, and make one of the bee.feeders, he will see that he has the means of safely and cheaply wintering his bees.

J. M. PRICE.

BUFFALO GROVE, IOWA.

[For the American Bee Journal.]

Cure for Bee Stings.

On the 12th of July, my youngest son, twelve years of age, was stung by a honey-bee on the side of the neck, just below the ear. In about five minutes, the ears, lips, hands, face, feet, and, in fact, every portion of his body, swelled up like a puff, all turning purple, and he complained of excessive pain about the heart. I immediately put him in a wet sheet pack, and he was relieved at once, got up in thirty minutes, and went to church. I presume that a cold-water bath would have answered as well.

I saw in the papers a case that occurred in Missouri of a man being stung by four or five bees, sitting down on the door-step, and dying in forty minutes. Here is another case. In the next county east of me, a man was stung by a single bee on the side of the neck, and died in forty minutes.

The peculiarities of my son's case were these: He is, and always has been, perfectly healthy; but the weather was extremely hot, the thermometer being up to 110° Fahrenheit in the shade. It was during this extremely hot weather that the other two cases mentioned occurred.

In consequence of those two cases, quite a number of bee-keepers have got rid of their bees, and gone out of the business in disgust. But I think they are a little too fast. Who would think of not using a horse because some one had died in consequence of being kicked? Or who would refuse to use milk or butter because some one had been gored to death by a cow?

For fear that some may not understand my remedy, I will explain. Have about three quilts or comfortables spread on a bed. Then wet a sheet in cold water, wring it, and spread it on the former. Next wet another sheet, and wring out the water that it will not drip. Spread this on the first sheet. Now strip the patient to the skin, lay him on the wet sheets on his back, and fold them about him so that they will touch every part of his body except the face. Fold up the quilts or comfortables about him in the same manner, and put wet cloths on the face and forehead. Let him lie there for thirty minutes, and he will be all right. A bath might answer as well, but sheets are almost always at hand. Any person who understands the water-cure knows what effect the wet sheets have, and also knows that it is almost instantaneous.

ELISHA GALLUP.

OSAGE, IOWA.

The Septuagint has the following eulogium on the honey-bee, Proverbs vi, 8, which is not found in the Hebrew Scriptures: "Go to the bee, and learn how diligent she is, and what a noble work she produces; whose labors kings and private men use for their health. She is desired and honored by all, and though weak in strength, yet, since she values wisdom, she prevails."—SMITH'S DICTIONARY OF THE BIBLE.

Bees dislike the smell of crabs and lobsters.

[For the American Bee Journal.]

Dividing Bees—Straight Combs.

On page 244, vol. 3, of the Bee Journal, for June, 1868, are some inquiries by C. E. Thorne, directed to me. They would have been noticed before, but I have been too busy to write.

Mr. Thorne alludes to a small book that I have in preparation, on getting straight combs, and making artificial swarms without looking up the queen, there being but "one exception." He wants to know about that "one exception," whether it might not be the *rule.* I answer in the negative. Let me explain. When a man has but *one* hive of bees, then he must seek for and find the queen. If there be more than one hive on the premises, then there is no necessity of losing a moment's time in searching for the queen. There are no failures by this system of dividing bees, and every man or woman can safely practise it. The system is perfectly simple and readily understood. It may have been published, for aught I know, but I have failed to find it in detail.

On my visit to Professor Kirtland, of Cleveland, Ohio, three years ago, I gave him a practical illustration of a portion of the system, by dividing a colony of bees for him, and he writes me that he now practises it *exclusively*, and has ever since my visit as above. He regards the system as the best and simplest yet devised, and worthy the attention of all classes of bee-keepers. It is not necessary for me to state that Professor Kirtland is a bee-keeper of experience, nor that he is regarded as *authority* on this subject. These facts are well understood.

Now, a few words with regard to *straight combs.* Mr. Thorne wants to know if my way of getting straight combs is an improvement on the well-known plan of raising one end of the hive, *a la Quinby.* Well, sir, if my plan were no better than that, I would keep still, and never divulge it, for that is of very little value. I have had some little experience in the matter, and think I know whereof I affirm. I should be very glad indeed to get straight combs, and as even in thickness as a ⅞-inch board, by such a simple plan, but I cannot do it. The plan I refer to, however, will do it in every case, and if I can get time to finish writing the book, I am sure that others can secure the same result. It matters not to me *how long* the frames are, about getting the combs straight. They can be had as straight and nice in frames *six feet long* as in short ones of one foot or less. The book is not yet ready for the press, nor can I state how soon it will be, for I have so many business correspondents to attend to that I find very little time to write even a brief article for the Bee Journal—a periodical worthy of a generous support, not only in a literary but a *financial* point of view. M. M. Baldridge.

St. Charles, Ill.

Bees require more than twice as much honey to produce an ounce of wax, when they have no pollen at command, as when well supplied therewith.

[For the American Bee Journal.]

Italian Queens, Pure Fertilization, and Bee Books.

On the 24th of June, I received three queens from Wm. W. Cary, of Coleraine, Mass , price $10. The express charges on the three was $1,60. They arrived in excellent condition, and their purity proves satisfactory. I think Mr. Cary is worthy of patronage. As he says that he had charge of the first queens imported by S. B. Parsons, in 1860, he ought to know, by this time, what good stock is, and any person ought to be satisfied with the price.

On the 5th of September, I received a queen by mail from Mr. Henry Alley, of Wenham, Mass., price $3; postage, two cents, paid by Mr. Alley. She is a good-looking queen, but as she has not laid an egg since I received her, I cannot say anything about her purity. He also sent me one of his fumigating pipes, and I introduced her by his process, and it proved satisfactory in that case. The readers of the Bee Journal will recollect that his process of introducing is with tobacco smoke. What I wish to call the attention of queen-raisers to is his method of shipping by mail. The box or cage is as cheap and simple, if not cheaper, than any express box I ever saw. Shipped on the 31st of August, with about twenty workers, I received them on the 5th of September, late at night. There was one dead worker, and he looked as though he had died of old age. The rest were as fresh as if they had just been put up, with ample provision for ten or fifteen days. I think nothing of the queen's not laying, for none of my queens had laid any for ten days previous to receiving her.

On the 17th of September, Mrs. E. S. Tupper, of Brighton, Iowa, sent me the details of her method of procuring the fertilization of the queen by any drone desired, requesting me to test it, and report what I thought of it, but, as I had no drones, I could not test it this fall. Allow me to say that it is a great step in advance of any process yet made public, for if it works, (and I have not the least reason to doubt it will,) there is no possibility of losing the queen, or of having her mate with any other drones than those selected. The process is secret at present, but will be given to all those who order queens from Mrs. Tupper. The readers of the Bee Journal know by this time that I am opposed to all secrets in bee-keeping; but as Mrs. Tupper has to support herself and family, (and her husband is an invalid,) she is as much entitled to some compensation for her discovery as any person that I know of; and as she has imported stock both from Italy and Germany, any person will no doubt obtain his money's worth, both in the secret and in the queen obtained.

Mr. J. R. Dodds, of New London, Iowa, has sent me the *Bee-Keeper's Guide-Book*, by E. Kretchmer, price fifty cents. It is a work well up to the times, and worth many times the price to any new beginner. In fact, Langstroth's, Quinby's, King's *Bee-Keeper's Text Book*, Kretchmer's, and the American Bee Journal, are the only works on bees that I am acquainted with that are really worth the money they cost.

Osage, Oct. 6, 1868. E. Gallup.

[For the American Bee Journal.]

Various Topics.

The Sainfoin.

The sainfoin (healthy hay) is a plant very convenient for soiling cattle, or for dry fodder. All herbivorous animals are very fond of it. It is, as its name imports, very healthy food for all. Even horses can be fed on it freely, in its green or dry state, without the least danger.

In France it is generally sown on poor dry soils, where the clovers or the lucerne grass cannot thrive. It succeeds best on calcarious and sandy soils, and on stony spots. I have known it to yield more than two tons of hay to the acre, on soils so covered with small stones that hardly an atom of ground could be seen on the surface. Its rose-colored flowers, *bluish when faded*, are so pretty that they would not disparage a flower garden; and afford for three or four weeks an abundance of delicious honey for the bees. It is to sainfoin that the Gatinais honey owes its well deserved reputation in the Paris markets.

If any bee-keepers wish to try it, I would advise them to select a dry and porous soil for it, for even in France it will not last more than one or two years on rich ground not naturally well drained.

I do not doubt that, with our fine Indian summers, it would here produce a second crop ample enough to be worth cutting and curing, besides affording abundant fall pasturage for bees.

The Lindens.

Although the nurserymen's catalogues show only two varieties of the linden tribe, the one American and the other European, there are at least three American varieties known—the Tilia alba, (white lime); the Tilia Americana, (the American lime or bass-wood); and the Tilia pubescens, (the downy lime). The European varieties are:—The Tilia plataphylla, (broad-leaved lime); the Tilia microphylla, (the small-leaved lime); and the Tilia argentea, (the silver-leaved lime).

All these varieties are of rapid growth. The first two European varieties should prove a good acquisition, for, as in France they blossom in June, it is probable that in this country they would lengthen out the harvest of that delicious honey.

The silver-leaved linden is probably too tender for the cold winters of the northern, eastern and middle States, as its native country is the south of Europe.

While residing in France, the thousands of linden trees which adorn the walks and the roads around the city of Langres, were one of the main resources of our bees. These lindens were mainly of the broad-leaved variety; yet some of the small-leaved lindens intermixed, blooming later, prolonged the aromatic crop for one or two weeks.

Mellextractor.

The honey-emptying machine is named mell-extracteur, in France, from two Latin words. That name, being shorter, would, I think, be more convenient than the term we use.

The mellextractor can be made cheaper, by using a cord winding around a vertical stem, as used in wind-mill toys, instead of the iron cog-wheels.

The Ruchee. (Rooshai.)

In English we have no term to designate the bees together with the combs, brood, &c. The words stand, stock, &c., are too vague, and designate too many things. In France, they call a swarm *essaim*, a hive ruche, (*roosh*), and the inmates of the rushe, ruchee, (rooshai). Why should we not borrow these names from the French dictionary, as the scientists have already borrowed their chemical nomenclature?

The Shallow Hive once more.

Though I see from Mr. J. T. Langstroth's article in the last number of the Bee Journal, that he thinks that all the criticisms directed against the Langstroth hive, come from men *making indiscriminate attacks on anything connected with the Langstroth name, or who will prove all things and hold fast to that which is good*, yet, setting aside these little courtesies, I wish to submit my humble criticism relative to his hive.

The Bee Journal is an arena where all ideas and opinions can meet and struggle. The common sense of the public will, sooner or later, judge without appeal, and decide in favor of the true and the right. A thing valued as good to-day, may be rejected to-morrow, and replaced by something better. All this is very plain, and fair.

The Langstroth hive has received, in the October number, many praises—five, if I do not mistake. Yet I find in the same number, page 69, a few lines from the pen of Mr. C. S. Payne, which destroy those praises, in part, if not altogether.

The fact that the queens do not lay as many eggs in the shallow as in the square hives, agrees with the habits of the queens. Indeed, the queen always begins to lay in the centre of the comb, placing her eggs around those first laid, and so on in a regular circle. The bees give to the young grub the food found in the nearest cells, so that the queen after her turn around the brood, finds the cells ready to receive her eggs; and so on till all the combs are filled with brood. In the shallow frame, the bottom and the top of the comb are soon reached, and the queen is disturbed in her circuit, and loses time in seeking for empty cells.

This is, in my opinion, one of the greatest defects of the Langstroth hive—a defect not compensated by the facility of drawing the frames; that greater facility being more in appearance than real. Indeed, the bees, in order to put more honey in the top of the combs, lengthen the cells so as to hardly leave room for a bee to pass between the two adjoining combs; while the lower part of the combs—that is, three or four inches below, destined for brooding purposes, is always of equal thickness, not broader than the depth of two worker or drone cells. Now, as the main difficulty resides in drawing the upper four or five inches of the comb out of the hive, it is no matter whether the narrow part is some two or three inches larger. Mr. L. has therefore sacrificed a material advantage to one quite imaginary.

What is the matter.

In August last, one of my neighbors traded with me twenty-five *ruchees* for six Italians. Many of his *ruchees* being weak, I put six of them in place of six hybrids.

The first few days my hybrids seemed discontented. Yet as they were working freely, I thought they would soon become accustomed to their new company. But after five or six days, they began to kill the black bees. In vain did I give them honey, smoke, or scented sugar water; the struggle, restrained through the day, was resumed again at night, and continued till all the black bees in the six hives were killed. Some fifteen days after, I found two black queens dead in front of two of the hives, having evidently been killed by my hybrids.

Can any of the readers of the Bee Journal tell me what was the cause of this massacre?

Wintering Bees.

Many extensive bee-keepers, Messrs. M. Quinby, J. Marvin, A. Grimm, Bidwell Bros., and others, concede that the *ruchees* winter better in some conservatory than on their summer stands.

I advise Mr. Abram Brundage not to put his scheme in execution. Every warm day, his bees, finding the entrance of the hive shut and becoming excited, would gorge themselves with honey, and being prevented from discharging their fæces, would perish. A better way is to put all his hives in a cellar, if possible; or put some straw around the hives, except in front, to give the bees a chance to avail themselves of every sunny day.

Perhaps the article in the November number of last year, on wintering bees, if republished, would benefit some of your new subscribers. I have never lost a colony treated in that way.

Ch. Dadant.

Hamilton, Ill., Oct. 6, 1868.

Consider the wisdom and happiness which are found among a swarm of bees; a pattern to all human societies. There is perfect allegiance, perfect subordination; no time is lost in disputing or questioning; but business goes forward with cheerfulness at every opportunity, and the great object is the common interest. All are armed for defence, and search for work; so that in every member of the community the two characters of the soldier and the laborer are united. If you look to the fruits of this wise economy, you find a store of honey for them to feed upon, when the summer is past and the days of labor are ended.—Jones of Nayland.

[For the American Bee Journal.]

E. Gallup's General Rejoinder.

Mr. Editor:—Some of the readers of the Journal have done as I invited them to do; in other words, they have pitched into Gallup *good* in the October number. Now, I do not care anything about having the last word; but some explanation seems called for, especially where the parties have misunderstood me.

We will begin with friend Price, about those exceptions. To illustrate, I will give this season's feeding, &c. Last fall, I had thirteen swarms of bees, and consequently had thirteen this spring. I have increased them up to thirty-five swarms. As I am commencing in the business here, my object has been increase of stocks, rather than surplus honey. Two of said swarms lost their queens in May, so I had no increase from them. Some time in the month of June, I fed one swarm twice, three tablespoonfuls each time. One swarm that I had a queen in from which I was raising queens, I fed at three different times, two spoonfuls each time of thin sweet, made from common sugar. This I sprinkled on the frames and bees from the spoon. I never used a sprinkler in my life to feed bees. That is the extent of my feeding this summer. Now for the result. I have sold one swarm, which leaves thirty-four; and on the 5th of October I examined every swarm, and found one without sufficient honey; but I likewise found three swarms with too much, so that all I had to do was to exchange combs—the very best way for winter feeding that I ever tried. Our supply of honey was all obtained before the 25th of July, with the exception of six days in September, three days at one time, and three more after an intermission of five days. The swarm that needed feeding was a natural swarm. I had three natural swarms this season—the first for the last ten years. I also found one swarm destitute of a queen, and with very few workers remaining, but as the hive is well filled with honey, I shall keep it for spring feeding, or to put a swarm in. Every one of my swarms, deducting the queenless one, is now in the very best condition for wintering, and on the 20th of July, twenty-six of said swarms were in excellent condition for storing surplus honey; but as the honey harvest was cut off so suddenly, I have only obtained about 200 lbs. in all. In ordinary seasons here, our honey harvest commences about the 20th of July. One more illustration: A Mr Harding, living about half a mile from me (he is an invalid,) took a swarm of bees last fall for one half the increase; and, under my direction, he has increased them to five, all in excellent condition, with comb built all right—all worker comb. They are strong in numbers, and heavy with honey. I asked him last week how much sugar he fed his bees, and his reply was, "Not over one pound." Now, as he was gone from home part of the time, his wife took charge of the bees, and the way she fed them was this: She took a common sauce plate, with a small piece of comb on it, poured the feed in, and set the plate in the vacant side of the hive, for it is only young swarms that need feeding. (You understand that I use a division-board in building up a young swarm.)

In the article that Mr. Price got those exceptions from, I invited people to try my method of managing bees, by strengthening them up early, so that they will not need feeding; at least, that was the intention of the invitation. Now, would Mr. Price have me pay for the right to use a feeder, and for one sample feeder, to feed five cents' worth of feed? That would be odd, sure enough! If any one manages his bees so that they are all, or nearly all, destitute of stores, I call it wrong management; and if you allow your bees to manage themselves, you will have, in such a season as this, any quantity of swarms that will need feeding. Such people need a feeder.

Right here, I will venture to make another of Gallup's assertions, (as our friend Puckett calls them,) and that is, that I never yet saw the season that bees, properly managed, were kept at a loss.

Friend Price, if you will read the article in the August number in this manner, commencing at "Now for my method: Make your swarms early, and strengthen them up and equalise them with brood from your strongest stocks in the breeding season, and while they are gathering honey." (The full stop comes in after *honey*, and not after *stocks*. Then, after the word *honey*, comes,) "How many will try this method, and report through the BEE JOURNAL," &c., you will get at what I intended to say in that article. Any person who manages his bees so that they require much feeding, either in summer or in winter, will be dissatisfied in the long run, and a great many will retire from the business, (especially after such a season as this has been,) and say that bee-keeping does not *pay*.

Mr. H. D. Miner claims that he has been led astray, &c. Now, friend, it is not my intention to lead any one astray; but this I will tell you: *That question requires a long article by itself*, and I shall endeavor to give it to the readers of the BEE JOURNAL this winter, in time for next season's operations. *Time, patience, and perseverance will accomplish all things.*

Mr. H. B. King misquotes and applies a wrong meaning to my article replying to Mr. Alley. Previous to the appearance of Mr. Alley's article in the BEE JOURNAL, I had given a description of the hive which I use in preference to all others that I have ever tried, and also a description of the working of the hive; and it certainly looked like trying to quiz me, to ask what kind of hive I would recommend, after reading those articles. So I answered as I did; and now I am called upon for an explanation, which I give as follows:

In the first place, I make three classes of beginners. One class keeps a few swarms, and lets them stand where they are placed. If they swarm, they hive the swarms perchance, or let them go off to the woods. They never go near them again, summer or winter. Occasionally they consign a swarm to the brimstone pit, after cold weather sets in, so that the bees cannot get out to sting; and that is about the extent of their bee-keeping. To such I say, by all means use hollow basswood for hives.

The second class read some work on bees, or have some neighbor that is making bee-keeping pay. These get up a great excitement, and go into bee-keeping with all the enthusiasm imaginable. They are going to get rich in the business, &c. They hire Gallup, or some other puttyhead, to give them instructions, show them about their bees, &c. He (meaning that puttyhead of a Gallup) gives them all the instructions he possibly can. They pay little attention to what he says. If he tells them what to do, they do just the contrary, and for an excuse, say, "Why, I understood you to tell me so." Some time along in the winter, Gallup sees them, and the first salutation is, "*How come on the bees?* Did you fix them up as I told you to do?" "Oh no; I thought I would take some pains with my bees this winter, so I set them all in a row, and built a good box around them, filled it with straw, and stopped up all the holes in the hives to keep them warm, and to keep them in the hive;" Or if they are in box-hives, and Gallup tells tells them how to winter them in the cellar, by turning them bottom up, all open, they put on the bottom board, contrary to directions. Then, every time any one goes into the cellar with a light, the bees are disturbed, crawl out all over the cellar, and die. In fact they get the dysentery, and all, or nearly all, die off before spring, and the survivors, if any, are worthless for the next season. This class want a frame hive; of course they do. To this class I can recommend a hive of the form of the American. Recollect that I did not recommend the American hive, but only the *form;* or, in other words, a hive tall in proportion to its size. This class usually lose their enthusiasm, and don't talk *bee* the second season; and when they meet Gallup, they act as though they felt ashamed, and Gallup certainly does not blame them. (Friend King, there is really a good reason why the bees did not build worker-comb. If you used the American hive, and if you are good at guessing, you have probably found out the reason, without my telling you.) The above picture is not overdrawn.

Now we come to the third class. They are anxious for information; and if you give them information, they are careful to remember it, and put it in practice. If they meet with a failure, they learn something nevertheless by that failure, and avoid it the next time. This class persevere, and in a very short time demonstrate to their neighbors that bee-keeping is a profitable and pleasant pursuit. It is a pleasure to give instruction to this class. They are generally very sociable, good company, good citizens, an honor to their country, and to the community in which their lot is cast. To this class I can with confidence recommend the Langstroth hive. If you live far enough south, you will be satisfied with the shallow form; but if you live as far north as this, you will be better satisfied with it in the form in which I use it. If you live in Lower Canada, away north of Vermont, where I was born, make it in a still more compact form, and give it two inches more in depth of comb. The shallow form has eight or eight and a half inches depth of comb. I use ten or ten and a half inches. In Lower

Canada, I would recommend twelve inches in depth of comb for out-door wintering.

This third class of bee-keepers will do credit to a hive; or, in other words, they will build up the reputation of a hive. But the first and second class will destroy the reputation of any hive that was ever invented.

Now, reader, to which class do you belong? Remember that I do not place you in either class; your own actions place you where you belong. I will do all in my power to help you into the third class, but it is poor encouragement to help those who will not help themselves.

To explain to Mr. B. Puckett would be the height of folly, for it would only be another of Gallup's *assertions.* It would lack proof, at least to him.

The reader may want to know what became of the swarms that were boxed up, &c. All died, of course—twenty-two in number; and would have died if there had been ten thousand.

OSAGE, IOWA. E. GALLUP.

[For the American Bee Journal.]

The Season of 1868 in Michigan.

The past season here was extremely variable. Most of the month of March was pleasant and warm for the season, with but few days on which the bees did not fly. At the close of the month there was brood in the comb in most colonies, throughout a large part of the cluster of bees. April was less favorable. The month was cold and wet, and at its close there was less brood in many colonies than there was at its commencement. May was warmer again, and the bees commenced gathering pollen early in the month; breeding was extensively resumed, and for a few days, towards the close of the month, some honey was stored. Swarms (Italians) commenced issuing May 24. Most of the hives were now well filled with brood, and drones had made their appearance. According to the rules given by the advocates of artificial swarming, such swarms should now have been made; yet a division of stocks made at this time, or, in fact, at any time during the season, would have proved injurious to many, if not entirely ruinous to some, of the divided colonies. Perhaps enough bees and brood for one good colony might have been taken without injury from four or five good hives, but even such a division would seldom have proved advantageous. The yield of honey ceased with the failure of fruit blossoms. No more honey was stored until near the 15th of June, from white clover. Early in the month, most stocks were nearly destitute of honey, some of them quite so, and the drones in all colonies not queenless were killed. The slaughter was general. Not only were the matured drones destroyed, but drone larvæ were dragged out of the cells, and sacrificed to the wants of the colony. Some young swarms, after having been hived a week, deserted their hives, and returned to the parent stocks, without having made a particle of comb. In some old colonies, breeding entirely ceased. In fact, bees were little better off on the 10th of June than they were at the same date in April. About the 15th of June their condition again improved, and for nearly three weeks honey was stored quite freely. Another failure of honey occurred early in July, after which time very little was collected by the native bees, except for a few days from buckwheat. The Italians have done somewhat better. As a whole, the season has been a poor one. But very few of the young native swarms, or old stocks from which swarms have issued, are supplied with sufficient winter stores. Many of them are nearly destitute. Even the best colonies of Italians, from which no swarms issued, and in which no drones were reared, have stored only about eighty pounds of surplus honey in boxes, and that, too, with all the box-room they could possibly use. Small queen-raising colonies it has been necessary to feed much of the time since July.

I have used a home-made feeder, made in the following manner: Take a piece of two-inch plank, of the same dimensions as the top of the hive; bore a two-inch auger hole nearly through, so that the draw of the auger will go through the plank; tack a small piece of fine-wire cloth over the hole, on the under side; put the feeder on the hive, fill the auger-hole with honey, cover it with the ordinary top board, and the swarm is fed. If the bee-keeper wishes to feed more at a time, enlarge the hole with a chisel and mallet, or make several additional holes. Such a feeder is cheap, quickly made, and the bees can be fed in a moment's time, without attracting outsiders. All can use it, as it is not patented. The wood will absorb some honey, but the quantity will be trifling.

Although the past season has been a poor one, it should in no way discourage bee-keepers or bee-keeping. On the contrary, we should constantly seek to learn some lesson from the past that will be of use in future. The summer of 1862 was very propitious. It was followed by one just the reverse. The same is true of every season extremely favorable for bees and honey that I have ever noticed. The season of 1867 was a *very* good one. I expected that of 1868 would be correspondingly poor, and have not been disappointed. I prevented the issue of swarms in every way practicable. When they issued, I returned them to the parent hive, or joined them to some other stock, and have now very few if any colonies but what are in good condition for winter. I think the early, *universal* slaughter of drones, too, indicated more than a present scarcity of honey, as we were then told. We were advised to make artificial colonies, and manage the apiary the same as though the drones had not been destroyed. We were also told that we could see into the future further than the bees could, and that in all probability we should, by and by, have favorable weather. But the prophecy was not fulfilled, and the result has shown the instinct of the bee to be the nearest right. Bee-keepers who have made swarms artificially, or allowed swarms to issue at pleasure, to any extent, are now complaining that they have too many bees and too little honey. J. H. TOWNLEY.

TOMPKINS, MICH., Oct. 14, 1868.

THE AMERICAN BEE JOURNAL.

WASHINGTON, NOVEMBER, 1868.

☞ THE AMERICAN BEE JOURNAL is now published monthly, in the City of Washington, (D. C.,) at $2 per annum in advance. All communications should be addressed to the Editor, at that place.

☞ We cannot consent to insert, as communications, articles which have previously appeared, as such, in other papers or periodicals; nor can we engage to return manuscripts not used.

We are gratified in being able to present our readers this month with an interesting communication on foulbrood, from the Baroness Von Berlepsch—a lady who takes as warm an interest in all that relates to bees and bee-culture, as her distinguished husband, whose labors and services have long since secured to him a world-wide reputation. As she speaks and writes English familiarly, we hope to be under obligations to her frequently for valuable articles and important information, earlier than such could possibly reach us through the customary channels.

We have not yet received the number of the *Bienenzeitung* containing Dr. Preuss' account of his discovery; but our impression is that the fungi observed by him in foulbroody matter are rather the consequence than the cause of the disease. We have long been of the opinion that this malady originates in the use of pollen that is undergoing putrefacative fermentation from whatever cause. This coincides also with the views of Mr. Lambrecht, from whose pen an excellent article on the subject appeared in several recent numbers of the *Hanover Centralblatt*. Of these we had prepared a translation for our present number, but concluded to postpone its insertion to next month when we received the communication from the Baroness Von Berlepsch. These articles, in connection, we conceive convey more definite information as to the nature, source, and cure of the disease than has hitherto been attainable, and we trust may at last lead to a satisfactory solution of the difficulty which has so long perplexed and dismayed bee-keepers in almost every district of country.

☞ We are indebted to Mr. Dadant, of Hamilton, Illinois, for an article from the pen of Dr. Blumhof, giving an account of the state of bee-culture in Italy.

We frequently see, in the agricultural press, notices of fancied discoveries or new observations respecting bees, the novelty of which is confined to the *non-posted* observer and the uninformed reader. Of this description is an article now "going the rounds," in relation to a peculiar feature in the wings of bees, enabling the insect to form one wing of two by means of certain minute hooks upon the back of each. This peculiar feature is minutely described on page 85 of Unhoch's "*Introduction to a correct knowledge and proper management of Bees*," published at Munich just forty-five years ago, and is exhibited on plate 6, figure 13, of that work. It is also mentioned on page 91, and figured on plate 7, of Notcutt's "*Handbook of the Microscope*," published in London in 1849. thus "the wings of *Hymenoptera*, (bees, wasps, &c.), present a curious structure in a series of minute hooks with which the front edge of the wing is fringed. Their object is to clasp the hinder part of the front wing while flying, so as to increase their strength of flight." Unhoch says:—"The larger wing of a worker bee is 14 lines long and 4⅓ lines broad. It proceeds from the upper part of the thorax and is so connected, by cartilage, with the smaller wing lying above it that the one cannot move without the other. At about mid-length of the upper margin of each wing are situated nineteen or twenty, and frequently twenty-one minute hooks, finely pointed. By means of these the smaller wing is attached to the larger, to secure a more expanded surface when flying." Thus, we see, old things become new.

Part III of Dr. Packard's "*Guide to the Study of Insects*" has been received. It is handsomely printed, beautifully illustrated with three full-page plates and numerous cuts, and is replete with information about bees, wasps, and other hymenoptera It is a work of special interest and value to all who wish to obtain a correct knowledge of the various classes of insects. Published at Salem, Massachusetts. Price fifty cedts per Part.

We have received from Paris, volumes 10, 11 and 12, of "*L'Apiculteur*," the French Bee Journal, from which we expect to derive some valuable material occasionally for our pages. We send in return the desired number and volumes of the A. B. J. Will the Editor please favor us with a copy of the *L'Apiculteur* for July, 1868?

☞We have no doubt, judging from an incidental remark by Mr. Gravenhorst, that *the theory* of our correspondent below is the same as that on which Mr. G. proceeds, however they may differ in its practical application.

[For the American Bee Journal.]

To obtain all Worker Comb.

It is announced in the October Bee Journal that Mr. Gravenhorst, of Prussia, has probably succeeded in contriving a plan whereby bees may be compelled, in any hive, and under all circumstances, to build worker comb. That would certainly be an excellent thing, and possibly it may be done. Let us see if we too cannot contrive a plan to effect the same result. Drone comb differs from worker comb in two respects only, viz: in the diameter and in the depth of its cells. The greater depth of drone cells is just as essential as the greater diameter. Worker brood cells are seven-sixteenths of an inch in depth, and drone brood cells are nine-sixteenths of an inch in depth, or, taking cells on both sides of the comb, eighteen-sixteenths or one and one-eighth inches for the thickness of drone comb, and drone comb would be entirely useless, unless it could be built of this thickness. Now, to prevent drone comb from being built, or, in other words, to compel bees to build only worker comb, it is only necessary to *oblige them to build all their combs in spaces too narrow for drone comb.* I think that is the whole secret. Worker comb is fourteen-sixteenths inches in thickness. Then there must be left, on each side of the comb, a space wide enough for the bees and queen to pass, say three sixteenths on each side, making the whole width devoted to each comb, twenty-sixteenths of an inch, or one and and a quarter inches precisely. Now, this precise width could be given to the space occupied by each frame very easily; but to prevent the bees from running over to the next frame, and thus occupying a wider space and running into drone comb, some barrier must be used; but it must be of such a construction that the bees can readily pass from one comb to another, or they will be discontented and probably fail to build any comb at all. This barrier or guide could be made of wood or tin pierced with numerous holes, but best of large-meshed wire cloth, say number 4, or four meshes to the inch. If wire cloth is used great care should be taken to have it perfectly true or straight, so that the space would be of exact width throughout. I shall try this next summer and hope others will. It should be tried only when the honey harvest is abundant, and with large swarms, and it would be best to let them start combs before the guides are inserted.

R. Bickford.

Seneca Falls, N. Y , Oct. 16, 1868.

[For the American Bee Journal.]

Patented and other Hives.

Mr. Editor:—I see, on reading the Bee Journal, that a free interchange of thought between bee-keepers in different parts of the country, relative to the best modes of manageing the honey bee, is readily allowed in its pages. It is no wonder that so many minds should disagree in relation to bee-culture, for such is the case upon every great point at issue, by whomsoever presented. One succeeds well with an old style of box hive; while not a few are wedded to stationary frames, or close-fitting top-bars. All bear testimony in favor of their respective favorites, through some fancied or real good qualities said to exist in them. Not unlike many of your correspondents, I too have a preference in hives, and that is in favor of *Kidder's Compound Hive*, as possessing more good points combined in one hive, than any other with which I am acquainted. I do not know that I could present them separately, or even collectively, without trespassing upon the space devoted to your regular correspondents. However, I have ventured thus far, trusting to the apparent liberality of your excellent Journal.

In the June number I find an excellent article from the pen of J. Davis, of Charleston, Illinois, under the heading "*Patent Hives and Claims.*" Now, Mr. Davis is a stranger to me; nevertheless he has paid me, and every subscriber of it, a social call through the Journal, for which I am, and every reader of it ought to be, much obliged. His article has the "ring of the true metal" in every line. Yes, gentlemen, if your hives are worth anything, let us know, through the Bee Journal, *what makes them so.* Your circulars reach a few of us. They are no doubt just what they were intended to be, but fall short of the real wants of the bee-keepers. Many of them reveal the character of the writers much better than they do that of their hives. This is not what we want. Present us your "Claims!" Give us a description of your hives, illustrated by good engravings, and give these in the American Bee Journal, through which they can reach the practical bee-keepers of the country. If your hives possess real merit, it is there that the bee-keepers will tell one another thereof. If they are worthless (as many are) a self-conceited inventor may profit and perhaps improve his mental capacity, if not his hives, by criticisms and suggestions received from those whom he egotistically believes are his beneficiaries.

Dr. S. N. Vickary.

Darien, Sept. 30, 1868.

☞We are under the impression that, in a case tried at Utica a few years ago, before the United States District Court for the Northern District of New York. the *Kidder hive* was decided to be an infringement of the Langstroth patent.

Occasionally feed even your strongest colonies.

[For the American Bee Journal.]

Notes and Remarks.

Mr. Editor:—I have received the October number of the Bee Journal, and find many interesting subjects treated of in it, to which I would, with your permission, add a few remarks. Before I go further, however, let me thank you for so ably conducting the Bee Journal, and I hope that the time may shortly come when it will make its appearance more frequently, and not, as now, almost "like angels' visits, few and far between."

I see the last number speaks of the New England Fair. I ought to have been there, and should have been, but was detained by a felon, which was very painful, and would have prevented me from attending to my bees properly if I had gone there. Then, again, my honey did not satisfy me this year, as the season failed very early, and I thought, besides, there would be plenty entered for exhibition as good as any I had. Had I supposed there would be so little there, I should have attended with bees, honey, and wax that "might be deemed worthy of a premium."

One of your correspondents asks about the basswood tree, or American linden. I would say that it is perfectly hardy, a rapid grower, furnishing excellent forage, (the best, I think, in these parts,) and is a fine shade tree. Why could not our cities and towns be shaded by them? The tulip tree is the same, with this exception, that I do not find the bees work to any considerable extent on it here, even when dripping with honey. Why this is so I cannot conceive, but such has been my experience. It is quite the contrary with the bass-wood. The bees always resort to it when the weather is favorable, and I have known them to work on it by moonlight.

Italians I am very well pleased with, although they do not work upon red clover; neither are they as peaceable, when handled, as has been stated. They will resent an insult quicker, and to a greater degree, than will black bees; but it is the owner's fault if he is troubled with cross bees of whatever kind, either black or Italian. Keep your bees near the house, be around them often, never strike at them, do not jar the hives, and treat them with moderation, and they will be harmless as flies.

I once thought that toads would eat bees. I do not think so now, and for this reason. One lives, and has for three years, under one of my hives. I have tried him many times, the present season, by offering bees to him on a stick. He would not eat them; but offer him a drone, and presto! it is gone. One day last summer, when the bees were hanging out very strong, I swept them all down on him. He sat as quiet as he could till they crept back, when he hopped away to his hole.

I find that Mr. Langstroth's plan for wintering bees is precisely the same as mine, except that my hives are double; consequently, I do not put any covering on the outside of them. I lost several stocks last winter, till I opened all the entrances nearly as wide as in summer, after which I had no further trouble. I cannot, however, recommend shallow hives. Bees do not do well in them in this locality, or in only few instances. They do not swarm from them as early as from a more compact hive, and there is no advantage derived, except large box room, which I think can be gained in other ways, without a corresponding loss. I think bees kept in that kind of hive are more liable to dysentery than in other forms. The reason I give for this is, dysentery is caused, in some instances at least, by extreme cold, and as bees cannot cluster as compactly in shallow hives, they are affected accordingly.

I do not wish to detract in the least from Mr. Langstroth's hive, for he has originated a valuable improvement, without which bee-keeping would not be what it now is. I used his hive for a long time, and had a deal of trouble from what I have just stated. I wrote to Mr. L. last spring, telling him that in my opinion they were too shallow, and also too large. The past summer's experience has convinced me that I was correct, as far as they were adapted to black bees. For Italians they are not too large, and I am not sure that they are large enough.

I think very much of my Italians, but I do not believe that they will do near as well as has been claimed for them. I have one great trouble, which I consider the whole difficulty in keeping bees, and that is FOULBROOD. Can no way be devised, besides driving them out, to cure it? There was a remedy claimed some time ago by some one in Europe, I think. Why do we hear no more about it?

I will give my last experiment in regard to Italians. It has been claimed that they are longer lived than the blacks. I took two hives this season, one black and the other Italians, and transposed the queens. At the present time there is hardly a black bee in the one in which the Italian queen was put, while the other is largely predominant with Italians yet. I find quite a difference with the different hives about the time the young bees go to work. Some of them get started nearly or quite two weeks earlier than the others. Why is this?

To conclude, this season has been the worst I remember of. My honey yield has been better than I expected, although it is small. Buckwheat finished off very well, as some of my stocks made from twenty-five to forty pounds alone from this crop.

I had nearly forgot to say that I am making me an emptying machine on a different plan, dispensing with the tub. It will, I think, be a cheaper one than has yet been made. If successful, I will give you the result. It will not be patented. Wm. A. Barnes.

West Meriden, Oct. 5, 1868.

Treasure Found.—A gentleman in Westford, Maine, having occasion recently to replace the floor in one of the upper stories of his house, discovered, upon removing the flooring, that a swarm of bees had taken possession of the space beneath, as a depository for their gatherings. He obtained ninety-eight pounds of honey therefrom.

[For the American Bee Journal.]

Bees and Top Boxes.

Mr. Editor:—The present year has not been a good honey-producing season in Massachusetts, and many bee-keepers have failed to increase their stocks or procure surplus honey. I, however, have doubled my stock, and obtained honey enough for family use.

I use mostly the Langstroth hive, of the pattern made by W. W. Cary, of Coleraine, Massachusetts, having a honey-board with 1½-inch holes, and boxes of a capacity of about fifty pounds. I prepare my boxes with a little empty comb, but I find the bees are *indisposed* to ascend through these holes to the boxes to go to work, and thousands and tens of thousands had rather loaf than work under these circumstances.

I made an experiment, to *test* their disposition in this direction. In July last, there were several colonies of Italians, strong in numbers and rich in stores, all with boxes on the honey-boards, but they did not work in the boxes. I selected the weakest of these for an experiment—a colony which lost its queen early in spring, and ran down very low in numbers before a new queen was raised and it began to replenish its strength. From this stock I expected only that it would repair its losses, and get in trim for winter. I took from it one frame of honey, removed the honey-board, and placed on the frames six boxes without bottoms, which just covered the top of the frames. The honey season was almost over, as it was about the middle of July. The bees ascended to the boxes at once, and soon began to work. They filled three of the six boxes full, and one more nearly full, while seven other colonies by their side stored but one box. This experience proves to my mind that bees do not like to ascend through small holes to the boxes, and will not work under such circumstances with any zeal or in any great numbers.

The common plan of setting the surplus boxes on honey-boards places great obstructions in the way of the workers, and greatly retards their operations. Look at it, and think! The entrance to the boxes is from twelve to twenty inches from the entrance of the hive. A bee comes in, loaded with honey, which it wishes to deposit in a box. The combs hang within half an inch of each other, and the hive is full of bees, which cluster on the combs everywhere, blocking up the passages on every side. This busy worker must crowd and elbow its way slowly along as best it can. By and by, it reaches the box, empties its sack, and turns to make another excursion, but is detained again; jamming through a moving, surging crowd, it at length finds the door, and departs. Here is a tremendous detention, and waste of time and energy. What is wanted is some arrangement by which all workers who will can go to work, forty thousand of them simultaneously. No bee should be detained a moment from its work, either by finding a crowd blocking up its path, or for want of room to work.

This difficulty is mostly overcome in the Eureka hive, by the Rev. Jasper Hazen, of Albany, N. Y. In this hive there are eighteen boxes, with a capacity of one hundred and twenty-five pounds. They form, when all on, a kind of square arch around the central department, and are so made and arranged that the bees can enter freely to the right and left, as they pass into the hive, without going up over the combs; and all the boxes communicate with each other, so that a bee entering a box near the entrance, for instance, can pass into any box of the nest, or it can enter the boxes from any part of the sides or top of the central department.

The *desideratum* to be secured is, free entrance to the honey-boxes and unobstructed passage-way, so that all the workers who will can simultaneously go to work, storing honey in the boxes. The Eureka hive secures this- I have one of these hives, and am satisfied that it secures the bees an opportunity to work in boxes which is not afforded by any other hive with which I am acquainted, if I except, perhaps, one gotten up by Henry Alley, of Wenham, Mass. He has made an improvement on Langstroth's hive, by which he encircles the central department with a nest of twenty-five boxes, and he says that, on the 12th of July last, the bees were at work in all of those twenty-five boxes.

P. R. Russell.

Bolton, Mass.

[For the American Bee Journal.]

Requeening.

Mr. Editor:—In the August number of your Journal there is an article from "Köhler" on requeening, some points of which he seemingly does not understand as I do. He says that all young bees raised in the fall, which will not participate in honey gathering, are merely consumers, and therefore unprofitable for that season. I beg to differ with him, and will give the reasons. I think many who have Italianized their stocks have observed the fact that nucleus colonies formed from black bees at the same time that Italian queens are introduced in large colonies, continue to have black bees long after any such can be found in the large colony. Another fact: put an Italian queen in a colony, and make another queenless for a time, and the queenless one will have black bees longer than the one Italianized. This proves that the mortality of bees is brought about by outside labor, and also that the young bees hatched after requeening, take the place of the old ones which engage in field labor. So the question is not whether the young bee will itself have time to gather honey, but whether it will have time to take the place of older ones, which will certainly go to the field if released from indoor labor. This view makes at least a difference of one month in favor of requeening, and I think any one who has had the chance to observe the above facts will agree with my view. Of course, if no queen was at hand, or if the colony was much reduced, I would break it up; but if still numerous, and a queen is at hand, I would just as soon break up any other stout colony that has a queen.

We have had a fine season for bees, and our best stocks are swarming as in spring.

A. G. Willey.

Murfreesboro', Tenn., Aug. 31, 1868.

[For the American Bee Journal.]

Wintering Reserve Queens.

In a former number of the BEE JOURNAL, it was asked whether, and how, supernumerary queens in nucleus hives could be wintered. As the time is now at hand when colonies should be arranged for wintering, I will endeavor to reply to the inquiry, in so far as my experience warrants. For many years past I have tried to winter nucleus hives of various sizes, but never with a satisfactory result. After spending much time, and wasting a considerable amount of honey on these small colonies, they would die, sooner or later, according to the number of bees they contained. Last year, as a final effort, I concluded to unite all these small nuclei in a larger hive, just half the size of those I commonly use—that is, nine inches broad by twelve inches deep, and twelve inches high. This small colony was healthy and lively when I brought out my bees from their winter repository in the month of March, containing then still about a quart of bees, but no brood. Two other full colonies were in not much better condition, having only a small quantity of brood. As we had still a frequent recurrence of cold days, and of cold nights especially, I replaced these three weak stocks in the cellar, after having allowed the bees to fly; but two weeks later found the smallest of the three dead. In April, the other two were continually growing weaker, till finally I had to break them up, in order to save the queens, which were pure Italians. I have always found this to be the condition of all weak colonies. After bringing them through the winter, with great trouble and no small sacrifice of honey, they would commonly swarm out and decamp in the spring; and if I attempted to reinforce them with brood or bees taken from some strong stock, the latter was much more injured by the operation than the former was benefitted, for in the early spring no colony can well be too strong. Hence I have invariably found it most advantageous to unite all the weak stocks with stronger ones in the fall, and have often repeated this in the cellar, towards spring, on finding that others have become greatly enfeebled.

After the experience I have thus had, I cannot but advise beginners in no case to undertake to winter weak colonies, as the winters, at least in this latitude, are too greatly protracted, and all weak colonies are sure to lose twice as many bees, in proportion, as strong ones, and are not strengthened through the winter, like the latter, by accessions from maturing brood.

As regards the ventilation of hives, I will only remark that I aim in this, as in all besides, to maintain a judicious medium. Four one-inch holes in the cover or honey-board have always been found sufficient for my strongest stocks. For the weaker, I open only two holes, on the side most distant from the clustered bees. Covering these holes with wire gauze is not only unnecessary, but may be injurious, as a single bee endeavoring to work its way out there may disturb and excite the whole colony.

The main matter is, that the cellar or clamp in which stocks are deposited be dry and dark, and that the hives are carried there only in dry weather. If the place be a little too cold, it will do less harm than if too warm.

Disposed of in this manner, I carried my bees—sixty-four colonies—successfully through the last winter, not losing one while they remained there, nor did the combs suffer from dampness and mould. Afterwards, indeed, I lost several colonies from various causes, but even of these the comb and the honey they still contained remained available for early spring swarms. I propose to winter all my stocks, comprising one hundred choice Italian colonies, in my detached *clamp cellar* the coming season, and will report the result in the spring.

Unfavorable as the season was on the whole, I doubled the number of stocks in my apiary, and have obtained, besides, one thousand pounds of honey, and about fifty pounds of wax. The last five years have not been as propitious to bee-culture here as the previous ones, and all those who did not keep themselves well posted during this period have fallen back, instead of advancing; some, indeed, have gradually retrograded till they have lost their entire stock.

W. WOLFF.

JEFFERSON, WIS.

[For the American Bee Journal.]

Bee-Feeder.

The following is a description of a bee-feeder of which I claim to be the inventor. It is simply a wooden box, open at bottom and top. A piece of cotton cloth is tacked over the bottom edge of the box, and it is then treated to a coat of pitch all around the edge of the box, over the muslin. This sticks it fast, and makes it perfectly waterproof. A little of the pitch should be put in the corners of the box. A strip should be tacked on to two opposite sides of the box, so as to raise it high enough to keep the bees from waxing or gumming the cloth. It may be covered with a thin piece of board.

The pitch is made by melting rosin and beeswax together; the large portion should be rosin. This pitch will be found very useful to bee-raisers, particularly for fastening combs in movable frames, or for sticking pieces of comb anywhere you wish. It is used hot, with a small painter's brush.

The cloth should be wetted before the feed is poured into the box.

Although I have no doubt that this is the best bee-feeder that ever has been or ever will be invented, I do not intend to take out a patent on it, and wish this published to prevent any other person from doing so. W. T. SINGLETON.

SPRINGFIELD, ILL.

* * *

An individual may be so full of the virus of one or both of the two insects, the bee and the mosquito, that the sting of the one and the proboscis of the other will produce neither irritating nor harmful effects.—B. F. J.

[For the American Bee Journal.]

Two Queens in one Hive.

The singularity here was, as will be seen, that one was a fertile mother and the other a young queen, supposed to be about three days old.

In May, 1867, I bought, of Rev. L. L. Langstroth, a twenty dollar Italian queen to propogate from. Some time in July, 1868, there being quite a demand for queens, I removed the old mother queen from the large hive, to procure cells.

After the cells were capped, I removed them to small nucleus hives, and restored the queen to that from which she was removed. In three days, after these cells were hatched, I had occasion to go to the old colony, to procure eggs from the old mother queen. On opening the hive, I saw a young unfertilized queen on the first comb I lifted out; of course I understood how she came there—a cell had been overlooked.

I now supposed my old queen was killed, and commenced lifting out the combs with much anxiety; but, on the third comb taken out, I found the old queen depositing eggs as usual. I then captured the young queen, and introduced her where I intended to put the eggs.

This is the second time I found an old queen remaining with the colony, after a young queen had hatched. But I think, as a general rule, the old queen is on the decline and refuses to leave the hive, and is barely tolerated in her old home. A. SALISBURY.

CAMARGO, ILLS.

[For the American Bee Journal.]

Loss of Queens.

I was unfortunate enough this last summer to lose a queen that I procured from Mr. Langstroth one year ago. I caught her about noon, put her in a cage for the purpose of introducing her into a hive of common bees. At the same time, I caged the common queen, and put them both on a shelf in the house. On examining them in the evening, I found them both dead. There were a few large black ants in and about the cages. The queens had nothing to eat for four or five hours. Now, I wish to ask, did they starve, or did the ants kill them? Or what do you think was the trouble?

J. W. MAYFIELD.

GOSHEN, IND., Sept. 29, 1868.

☞We suppose the queens died of starvation, as we never knew ants to attack living bees. Perhaps a kind of *nostalgia* too had something to do with it.

At the swarming season, if the weather be warm and moist or wet, thus favoring the production of brood, bees are strongly inclined to build drone combs, often making a sudden transition from worker to drone cells.

[For the American Bee Journal.]

Is Puff Ball Smoke Injurious to Bees?

QUESTION ANSWERED.

All narcotic substances affect bees more or less injuriously, or even fatally, according to the quantity to the operation of which they are exposed. Bees are readily stupefied, and may even be killed, if long subjected to the effects of tobacco smoke. When fumigated to stupefaction with puff ball smoke, a considerable number of the bees operated on are invariably killed, as I have discovered on numerous trials. It is almost as bad as exposing them to the fumes of burning brimstone, and I cannot, therefore, recommend the use of it.

W. WOLFF.

JEFFERSON, WIS.

[For the American Bee Journal.]

Question to Novice.

You inform us that you take the honey out of the combs as soon as gathered, or at least every five or six days, and express your regret that you did not take it out more frequently by means of the machine.

Please inform us whether this very thin fresh-gathered honey did not speedily turn sour? My opinion is that the honey has to be condensed in the cells by the bees, and that as soon as it is sufficiently ripe or thickened they will seal it up. Is it not the proper time to remove it from the comb, just when the bees begin to seal it up? W. WOLFF.

JEFFERSON, WIS.

Bee-Glue or Propolis.

In the immense forests of Poland and Russia, where the bees select their own habitations in hollow trunks of trees, the bee-glue is deposited in much larger pieces, and of a superior flavor, to that which is obtained in countries where these insects are raised by the aid of art. The inhabitants of the former generally use this bee-glue as a vulnerary application, to promote the healing of fresh wounds. Dr. James, in his "*Medicinal Dictionary*" praises the bee-glue as being gently heating, abstergent, and attracting. It softens indurated parts, alleviates pain, and induces cicatrices on ulcers.—*Maillet's Travels.*

If a swarm by bad weather be checked and hindered in their work the first week, they will seldom work courageously all the summer following.—PURCHAS.

In the busy summer season, when there is plenty of honey to gather, few of the worker bees get to be more than six or eight weeks old.

Bees rarely deposit pollen in drone cells.

AMERICAN BEE JOURNAL.

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AT TWO DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

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[From the German.]

Foulbrood.

ITS CAUSE, SOURCE, AND CURE.

Among the various diseases of bees mentioned in the history of bee-culture, so far back as that history can be traced, there is none so dangerous and destructive as the justly dreaded FOULBROOD. Entire apiaries have been swept away by this pestilential evil; and many a bee-keeper has been literally ruined thereby and constrained to abandon bee-culture, heavy losses having deprived him of the means of procuring a stock of healthy bees to replenish his hives. Others, less seriously injured, were yet so disappointed and discouraged by the damage sustained, as to contract an utter distaste for a pursuit liable to be thus disastrously affected; and if the matter be regarded solely from their point of view, their case is entitled to commisseration and sympathy, and their determination need not create surprise. The evil befals its victim suddenly and unexpectedly, ofttimes attacking his stocks like a thief in the night, and spreading rapidly from colony to colony. It is consequently by no means strange that the dismayed bee-keeper is filled with sad forebodings when, on opening one of his hives, he perceives exhaling from it an offensive noisome stench, instead of the pleasant odor of honey. With no personal experience to direct him, and fruitlessly employing the remedies suggested by others, he is forced to look on the progress of the malady in hopeless helplessness; and when the last of his colonies has perished, he abandons in disgust what he had expected would prove to him a lucrative pursuit, or at least an agreeable relaxation from exacting duties. Such is but too frequently the melancholy issue; and this fact is of itself a sufficient reason for an endeavor to devise, from careful observation and a resort to the aids of science, means of infallibly and invariably curing this disease whenever and wherever it occurs. Whether the following dissertation will show that we have been successful in this endeavor, must be submitted to the ultimate judgment of intelligent apiarians; though we shall not, in the meantime, refrain from saying that we will guarantee success in every case where the proposed remedy is applied, and the requisite operations are properly and punctually performed.

When the observant bee-keeper finds on the bottom-board of any of his hives small dark-brown particles or granules, which if crushed between the fingers become plastic and emit an offensive odor; and when, further, he sees that the caps of the brood cells are sunken and that the cells themselves contain dead and putrefying larvæ, either still soft though decomposing, or already shrunken to a dry, black and fetid mass; or, even when immature, dead, and decomposing larvæ, are torn out of the cells by the workers and found lying on the bottom-board; he may feel assured that he has before him conclusive evidence of the existence of foulbrood in that hive. To the experienced bee-keeper the pestilential smell issuing from the hive, at once proclaims the diseased condition of the colony, and renders closer inspection superfluous. Cases occur, indeed, when from protracted want of forage or prolonged bad weather, the stores of a colony becoming exhausted and there being no immediate prospect of new supplies, the workers tear the brood from the cells in despair, and cast it out. But here the larvæ are still fresh and untainted, showing not the slightest symptom of disease or even of incipient decomposition, and from the hive no offensive smell is diffused. This, though an evil, has still no connection with the malignant malady of which we are treating. There is, besides, a mild and non-contageous form of foulbrood, specially distinguishable from the other by the circumstance that where it exists it affects only the *uncapped* larvæ, which are found dead in the cells. This results merely from exposure to severe cold consequent to a sudden change of weather when the lower portion of the combs are already occupied by brood; and not from any injurious property of the chyme with which they were fed. Nevertheless care is important even here, and it is always prudent to treat the case promptly, when such appearances present themselves, in the manner described further on.

To the external accompaniments of foulbrood pertain indisputably the peculiar gaseous and putrescent miasms with which the atmosphere of the hive in the interspaces between the combs is charged, converting the hive itself into a reservoir where the germs of the destructive disease are inexhaustively generated and whence they are boundlessly diffused. The atmosphere of a hive containing foulbrood is fatally infected. The ammonia developed therein from the decomposing larvæ, and the sulphuretted hydrogen there generated, act destructively on the vital force of the bees; their store of food—more especially the pollen—is permanently tainted, and thus becomes peculiarly adapted to promote and sustain the continuous generation of miasmatic corpuscles. Of this fact we shall treat more fully further on, our purpose being previously to elucidate the source of the two elementary substances just named.

It is a universally recognised maxim that "wherever organic substances are decomposing—that is, being resolved into their constituent elements—ammonia and sulphuretted hydrogen are produced." That this is the case, too, wherever foulbrood occurs in a hive, can be demonstrated beyond doubt by the following simple experiment. Place fifteen or sixteen larvæ of bees in a small glass phial, and pour in as much water as will cover them to the depth of 1½ inches. Dip a strip of common letter paper in an aqueous solution of sugar of lead, dry it, and suspend it in the phial close above the water by means of a cork. After standing a few days, the following changes will be observed. The suspended paper will have assumed a dark-brown hue, the sulphur developed by the decomposing larvæ having parted from the hydrogen with which it was combined, and united with the lead for which it has greater chemical affinity, thus forming sulphate of lead. The actual presence of sulphuretted hydrogen in the phial can be readily ascertained on opening it, by the disagreeable smell thence issuing, resembling that of rotten eggs. On the other hand, the nitrogen disengaged from the decomposing larvæ, now combines with the liberated hydrogen and forms ammonia, which is held in solution temporarily by the water. Pour a little of this water in a tumbler, warm it gently, drop in a small piece of caustic lime, and the pungent fumes thence arising will indicate the presence of ammonia, liberated and expelled by the lime. Of the other elementary substances contained in the larvæ, and now liberated, we shall take no notice at present.

It is well known that bees breathe not, as most other creatures do, through lungs, but through spiracles, (*stigmata*), two pairs of which are situated on the sides of the thorax, and one pair on each side of the abdominal segments. The larvæ, like all creatures, breathe atmospheric air, which, if life is to be sustained, must be pure and consist of four parts nitrogen and one part oxygen, with a small portion of carbonic acid and watery vapor, mechanically united. But if, as we have already shown, the atmosphere of a foulbroody hive contains in addition a quantity of ammonia and sulphuretted hydrogen, the creatures breathing it inhale certain death. That which they inhale must produce its natural effect. Life cannot be supported by such a medium, the inhalation of which can only produce morbific combinations in the delicate tissues of the larvæ. That the pollen stored in such a hive becomes constantly more and more decomposed, as has already been stated, by the presence of these foreign elements, probably needs no further demonstration.

Having thus indicated the points which we deemed indispensable to a proper elucidation of the subject, we shall now proceed to search for the cause to which solely the existence of foulbrood is to be ascribed.

Every bee-keeper is well acquainted with the nutritive substances on which bees subsist; but it may not be so well understood that these, as well as those of vertebrate animals, consist of two distinct classes, the non-nitrogenous, including honey, and the nitrogenous, including pollen. While the former are composed of three organogons—carbon, hydrogen, and oxygen, with a few inorganic substances, the latter are composed chiefly of carbon, hydrogen, oxygen, nitrogen, and sulphur, (phosphorus). These, *in consequence simply of their peculiar composition, decompose* with extraordinary ease. They readily ferment and putrefy when brought in contact with heat and moisture; and while thus decomposing, irresistibly affect, in like manner, any non-nitrogenous substances with which they are combined. They are the natural ferments which, in conjunction with heat, generate the process called fermentation, and which are peculiarly qualified to convert saccharine substances to other forms. I shall recur again, hereinafter, in its appropriate place, to this property of nitrogenous substances; deeming a closer examination of pollen, as a nitrogenous and sulphuretted substance, now more immediately in place.

The chyme which the workers prepare from honey and pollen by partial digestion, and with which the larvæ are fed, contains a *nitrogenous, plastic, formative substance from which all the organs and tissues of the larvæ are derived and composed.* It is composed, as has already been remarked, of carbon, hydrogen, oxygen, nitrogen, and sulphur, (phosphorus); and precisely because of this, its complicated composition, it is peculiarly susceptible of rapid decomposition when exposed to air and moisture—that is, to undergo fermentation and putrefaction. By decomposition, the elementary substances it contains are liberated; that is, the chemical combination previously subsisting is dissolved, and they are free to form new combinations, dependant severally on their more or less strong affinities. Thus nitrogen seizes and appropriates as much of the hydrogen as is required to form ammonia, the residue of the hydrogen combining with the sulphur and forming sulphuretted hydrogen; while the carbon unites with the remaining oxygen to form carbonic acid, &c. &c. We perceive from these various processes, that the decomposition which a nitrogenous substance is undergoing, results in the production of a number of new substances, possessing new forms and properties; and that the original effect which, as an organic unit, it was qualified to produce, is no longer attainable after decomposition is accomplished. It is hence obvious that pollen, even though having undergone only partial decomposition, must affect the bodies of bees and of larvæ differently from what it did or would do in its natural condition; and there is no longer a doubt that it is *from pollen thus partially decomposed that foulbrood originates.* That it can very readily undergo decomposition is manifest. Moisture, emanating in part from the unsealed honey, and in part from the perspiration of the bees, becomes condensed in the hive from external cold; and in the fall and towards spring it is frequently found hanging in drops on the combs, just as we find it condensed on the windows of our dwelling houses. If now one of these drops falls into a cell containing pollen, decomposition of the latter speedily commences, and is then communicated by the bees to the pollen in other cells; and the cause of foulbrood is hence abundantly present in a hive thus circumstanced. This, too, explains the *natural disinclination of bees to store water in their cells.* Their practice is to carry in barely so much water as their immediate wants require, and carefully lick up every drop of condensed moisture as soon as the internal temperature of the hive permits them to do so. The observation of this fact has doubtless induced many bee-keepers to believe in "water-dearth," in hives, and even to write about it; though bees are obviously averse to having water stored in their hives and remove it promptly whenever feasible. They are perfectly aware that moisture produces mouldiness, and that this destroys their pollen and may lead to the introduction of a fatal disease. This, however, only by way of a passing remark. Let us return to the further consideration of the problem in hand.

At first blush the suggestion that decomposing pollen is the cause of foulbrood may seem improbable, inasmuch as the brood has partaken of it from the first moment of its existence; and yet, till it has advanced so far towards maturity as to be closed up in its cell to undergo its final metamorphosis, the larva seems to have been in no degree affected by the deteriorated quality of its food or the lurking malady thereby induced. Nevertheless, the seeming contradiction will disappear on closer investigation, and the blame will again fall on the contaminated pollen. So long as the larva was fed with chyme already digested in the stomach of the bee, the aliment was partially deprived of its noxious properties by the change it underwent in the bee's stomach, having its original nutritious qualities in great measure restored. Consequently the larvæ fed therewith developed in an entirely normal manner, until ready for capping. It is possible, moreover, that the decomposition of the pollen may have been arrested or suspended by the action of the bee's stomach, or at least so acted on thereby that its admixture could not essentially deteriorate the nutritious property of the chyme. Similar changes are easily effected. Thus it has been observed that yeast, a ready generator of fermentation, when triturated with a muller, loses the property of exciting alcoholic fermentation; though it can still, in that state, convert sugar into lactic acid, &c. We conceive that this is no inapt illustration, if the stomach of the bee be regarded as a triturating apparatus by which the pollen was deprived of the greater portion of its noxious properties. But when the larva receives *undigested* chyme, the progressive decomposition is at once communicated to the tissues of its insect organism, which, incapable of resisting or neutralizing the noxious influence, are at once destroyed, and foulbrood *must necessarily* be the result.

Even when the chyme has been digested, that is, made edible and nourishing, and the larvæ receive it in this form, its fermentative power, as in the case of the triturated yeast, may have been changed, *but not destroyed.* A process of fermentation still takes place, resulting, however, in other products; and an accumulation of these in the delicate tissues of the larvæ, we may readily conceive would naturally and necessarily lead to death and putrefaction. Every substance capable of generating fermentation possesses the peculiar power of being able to communicate it to every fermentable body with which it comes in contact, and superinducing continuous decomposition till putrefaction is completed. The duration of the process is longer or shorter, indeed, according to the quantity of ferment present, or the greater or smaller amount of fermentable matter to be decomposed. When we now reflect how infinitely small is the portion of decomposing pollen matter which is mixed with the chyme in the stomach of the worker, we shall readily conceive that its effects will show themselves only after some lapse of time, corresponding in this case with the natural progress of development in the larva, and reaching its acme only after the larva is sealed up in its cell.

A. Lambrecht.

Bornum.

(*Conclusion next month.*)

[From the (London) Gardener's Chronicle.]

American Bee Journal.

I have both this month and last, through the kindness of some unknown apiarian friend on the other side of the water, received a copy of the "American Bee Journal," for which courtesy I beg to thank him through the medium of the *Gardeners' Chronicle.* There are in the Journal some admirable papers on bee-management, both from original sources and culled from the German *Bienenzeitung.*

The correspondent styling himself "Novice" says:—"About rye and oats this spring, Mr. Editor, it would have done you good to have seen them, in case you have never seen a similar sight. We had provided about *a bushel and a half* [the italics are my own] supposing that to be plenty. But as if remembering their last year's education, they opened on it with astonishing vigor, and consumed nearly all of it on the first two or three pleasant days. After the rye and oat meal was all gone, we gave them wheat flour until our better half 'feared that the bees would eat us out of house and home.' They became seemingly almost demented, and would dive into the flour and burrow into it until it seemed as though they themselves must lose their identity. They would fly towards us and take it out of our hand, as we carried it out to them; and such an incessant jubilant humming as they kept up while about it, made one think they could not be other than the happiest little scamps on the face of the earth. And the huge 'little biscuits,' (as our children term them), which they had deftly padded on either leg, presented an appearance ludicrous in the extreme, as they scampered hurriedly into their hives. After the rain had wet down their precious meal, and it had become baked over the top, they would not give it up, but tunnelled and burrowed under it until you imagined they they were not bees, but some liliputian wild animals burrowing in the ground. The Chicago tunnelling was not a comparison! 'But did all this meal really amount to any positive good?' some of our neigbbors asked. Of course it did. Our bees have never before been in half so fine a condition."

I have quoted this passage because, in common with many other English bee-keepers, I have never yet been successful in inducing the bees to partake of flour of any description. Some years since, having seen accounts of the benefits which resulted from feeding bees with rye, oat, or other flour, I tried both oat meal and wheat flour, given in various ways; but I never could distinguish that they paid the least attention to it, except that when it was placed near their entrances, they tried to convey it away from the vicinity of their hive. Certainly, so far as I could perceive, not a particle was eaten or carried within their entrance.

How can this apparent discrepancy be accounted for? I confess I cannot understand it.* Two of my immediate friends, who also tried the meal, also pronounce it an utter failure. I do not at all mean to dispute the accuracy of "NOVICE's" statement, but wish to know why it is that we have failed where he has succeeded.

Some English bee-keepers, at the time of our instituting the experiment, also tried meal and flour feeding, and imagined that their bees derived some benefit from it; but their testimony did not appear to be very positive or conclusive.

Another correspondent writing on "*Bee Management*," says:—"Strong stocks are the sheet anchor in beekeeping; and all worker comb in the breeding apartment of the hive is the very foundation of that sheet anchor. Without it, it is impossible to keep strong stocks." It is very true that strong stocks are the sheet anchor in beekeeping; but is it a good practice to have nothing but worker combs in the stock hive? If there is no drone comb there for the queen to lay in, will not the bees almost certainly construct drone cell comb in the supers, and the queen be induced to ascend for the purpose of filling them with drone eggs, at the time when the bees imagine that drones are required? I usually keep down the quantity of drone combs in my stock boxes; but if, from any cause, I should find in any particular hive all the comb to be worker-celled, I should supply one frame of drone comb in exchange for one of the others.

Further on, the same writer has the following remarks:—"We must never allow the bees to get in advance of the queen; for if we do, the prosperity of the swarm is checked at once; that is, if the bees are allowed to fill the combs with honey in the spring, before the queen has filled them with brood, the swarm will be an unprofitable one. Take a swarm that is nearly destitute of honey and feed it just right, that is so as to promote breeding early in the spring, and not fill the comb with honey, such a swarm will invariably be a prosperous one. On the other hand, allow a swarm that has honey enough for all other purposes to appropriate all the honey from one or two other hives early in the spring, and before they consume it the willows produce honey, then the fruit trees, the white clover, &c. Such a swarm will dwindle down to nothing, because the queen has no place to deposit eggs for brood."

This is all very true, as I have often had reason to know. In some of our seasons, in Devonshire, we have early prolific honey gathering. The cells in the central combs being but sparingly filled with brood, are at once appropriated by the bees for storing honey; the queen lays a very limited quantity of eggs, so that by the time the principal honey harvest of the season sets in, the population of the hive is so small that very little advantage can be taken of it, and the hive proves a very unremunerative one to its owner.

The writer also goes on to say:—"If from any cause the queen does not commence laying eggs as soon as she should in the spring, she should be stimulated either by feeding or by uncapping sealed honey in the hive, for whenever the bees are fed they feed the queen. Thus the rousing up of the bees and compelling them to fill themselves with honey, promotes breeding. Taking bees from another hive and putting them in with a strange queen, causes them to feed her and pay more attention to her, especi-

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*In warm localities and southern districts, where early blossoming pollen-yielding trees and plants abound, the bees will not carry in flour of any description. They prefer the natural article to any substitute whatever; and in any situation, forsake the meal pan as soon as they can obtain a supply of pollen from natural sources. In northern latitudes or colder districts, however, where brooding *en masse* commences long before catkins make their appearance on the willows, hazels, and maples, the great demand existing for nitrogenous nutriment makes the workers eager to obtain it, in the interval, from any available source, and they readily accept the proffered substitute. Probably in the milder climate of England, as in the Southern States of the Union, natural supplies may appear contemporaneously with the first production of brood in the hives, and the bees instinctively resort in preference to that table which they find profusely decked by the hand which caters for them as providently as for the sparrow.—Ed. A. B. J.

ally if they are young bees. Bees taken from three or four different swarms, in sufficient numbers to make a good stock, and put in a hive with a queen, will work nearly as well again as the same number taken exclusively from one swarm, with their own queen. Drumming out a swarm and putting it back again in the same hive, sets the bees to feeding the queen. A person who has never tried the experiment of stimulating, and regularly giving the queen all the room she can occupy with brood throughout the season, will be astonished at the amount of bees that can be raised in one swarm from one queen."

This is all very correct. I have often been upbraided by my friends for disturbing my hives, by removing the frames, &c., but I have generally found that such disturbance, so far from operating injuriously as regards the bees' industry, really had the effect of exciting them to increased diligence. I have occasionally been quite astonished at the enormous quantity of eggs which a queen can, under favorable circumstances and with judicious stimulation, be induced to lay, filling an immense expanse of comb.

A correspondent, H. Faul, recommends a method of safely introducing strange queens, which may be useful to many, and particularly those who are desirous of Ligurianizing their apiaries. He says:—"I see by your JOURNAL that bee-keepers still use the wire cage for introducing queens in deprived colonies. I have a better plan." (See BEE JOURNAL, volume 4, number 1, page 16). I have tried this plan of introducing queens, with success, but not invariably so. I am not disposed to give up the precautionary use of the wire queen cage, which I consider a safer and more reliable method, though I am bound to confess that, even with its use the lives of valuable queens are occasionally sacrificed.

Here is an account of what the writer considers to be "the finest bee country in the world"—Tennessee; "White clover is becoming the spontaneous growth of our bottom lands. Besides, we have an abundance of other bee pasturage, which lasts all the time that bees can be out. Forked Deer River Bottom abounds with wild bees. You can not place honey out anywhere in it, without its being in a few minutes covered with bees."

Wild bees being in many districts so very abundant, there is some discussion as to the best method of tracing them to their haunts, and effecting the capture of themselves or their sweets.

America must be a much superior honey country to ours. Mr. R. Wilkin states that he has sold a colony "to a neighbor, which yielded him last season four swarms. The first swarm swarmed twice; and two of the casts swarmed also—making in all seven from one. Two of these went to the woods. The remaining five became strong and rich for winter. The old colony and the swarms yielded, besides, eighty pounds of surplus honey."

The "Köhler process" for insuring the pure fertilization of Italian queens, excites, as may be supposed, considerable interest among bee-keepers who are so anxious to establish the Italian bees as our American brethren. I have not tried the plan recommended by Mr. Köhler for combining natural and artificial swarming, but have great faith in its efficiency, and hope to have an opportunity of trying it. Also his method of ensuring pure fertilization appears likely to be extremely useful to all apiarians desirous of Ligurianizing their apiaries.

There are many other articles in the AMERICAN BEE JOURNAL worthy of notice, and I hope to resume their consideration.

S. BEVAN FOX.

August 29, 1868.

[For the American Bee Journal.]

The Bee Feeders.

MR. EDITOR:—The object of this communication is to call attention to the subject of bee-feeding in this section of the country.

We find the production of honey here, this year, has been so light that one-half the bees in the country will die during the coming winter, if they are not fed. Many have already died. This has compelled us to use, or invent for use, the best means within our reach for the purpose of feeding them. I mean the vehicles by or through which we can safely feed them without attracting the attention of robbers.

I have used a common tumbler or quinine bottle, with a thin piece of muslin over the mouth of each, held in place by gum elastic bands. I fill the vessel full, put on the muslin and band, turn it bottom upwards over a hole in the honey-board or openings between the frames. If the syrup is of proper consistence, they will soon empty the vessel; if it is too thick, it will granulate into sugar again, and will not pass through the muslin. This, however, makes a pretty good *feeder*, and is a convenient way to *feed bees*.

I have also used a *better one* recently. It is made as follows: Take a pint or quart tin can, air tight, cut a hole in one end large enough so that the screw top for an oil can will cover it sufficiently to admit of soldering the top fast to the can, over the hole; then punch a number of small holes in the cap and screw it on to the top, fast to the can, and your feeder is done. This make the best feeder I have used. I believe that Mr. John M. Price of Buffalo Grove, Iowa, deserves much credit for this feeder.

The screw top to this feeder may be of various sizes; but one that receives an inch cap is generally to be preferred. I have also the *same kind* of a *can* as above described, with an opening cut in one end *three inches long and one-fourth of an inch wide*, with a tube one inch deep soldered into it, and a slide or hoop of the same form, to slip on this tube, to hold in place the thin muslin that closes the end of the tube. This likewise makes a good feeder, to use in those hives that have long narrow openings through the top of the frames. These feeders may compel us to pay particular attention to the density of the syrup used in them. Experience will soon determine this for us.

CHARLESTON, ILLS. J. DAVIS.

[For the American Bee Journal.]

Prolific and Long-lived Queens.

For the past five years I have been experimenting in regard to the longevity and fertility of queens. In some respects I may differ from all other writers or writings on this subject, that I am acquainted with. But the reader will bear in mind that an old experienced apiarian is not so liable to be mistaken or jump at conclusions, as one with less experience, or a novice in the business.

It is a fact that cannot be disputed that some queens are more prolific than others; and the question arises how can we secure all prolific queens? The first swarm of bees I ever owned I kept for twelve years; and, as I said in a previous article, I never failed of having a prolific queen in said swarm in the whole twelve years. The comb was all worker comb. I had swarms whose comb was nearly all drone comb, and at different times, I exchanged the queens to see whether the fault was in the queen or in the comb. And I invariably found that there was no difference in the fertility of queens of the same age. The queen put in where there is but little brood comb would breed but little, and *vice versa.* But these were all natural queens. Natural queens, or queens raised in a strong swarm, at swarming time, are almost invariably started from the egg, and fed on royal food from the beginning. Such queens are in their prime the second season, and do not show any signs of failure until the third season, or sometimes not until the fourth. They are invariably very prolific, provided they have a chance. On the contrary a queen that is started from the larva or grub, varies in length of life according to the number of days it was fed on worker food. For example, an eight days queen, hatched in May or June, has invariably failed the first season. They are but little if any longer-lived than a common worker. A ten days queen fails the second season. What I mean by this is, a queen hatched in eight or ten days from the time the nucleus is made up, or from the time a full swarm is deprived of its queen. Nearly all writers give ten days as the shortest term; but I have at different times had them come out in eight days, and in one case in particular I examined a nucleus before sunrise on the eighth day, and found the queen out and all the other cells,, seven in number, destroyed. This was in May, 1867, and said queen died of old age in August following. (A friend writes me from New York State that he has this season had one come out on the seventh day.) Consequently an eight day queen is or has been fed on worker food five days, that is allowing sixteen days for a natural queen, from the time the egg is laid; and I have had a considerable number of queens that did not come out of their cell until the seventeenth day after the swarm was deprived of its queen. In the case of my neighbor Mr. Harding's bees, after making four swarms from one, and taking out the last queen cell, as he supposed, and leaving one queen, his wife informed me, on the morning of the eighteenth day from the time the old queen was taken away, that the queens were still piping in the old swarm. (The weather had been extremely fine and pleasant). To satisfy myself, I went and examined the hive, and found one queen in the cell, having been retained there by the workers. I opened the cell, took the queen, and introduced her to a queenless colony belonging to another neighbor. She proves to be an extra prolific queen. Most writers say that all queen cells hang perpendicular, or nearly so, when completed, or the queen hangs head downward. I have had as many as five in one hive in horizontal cells. The only difference was, the cell was a trifle enlarged at the outer end, and capped over similarly to a drone cell, only somewhat more elongated or rounded at the point. I know by experience, that such cells are frequently found; but queens raised in them are not worth keeping, except for experiment. Now the question arises, how is the novice to raise prolific and long-lived queens? Answer: either by waiting until natural cells at swarming time are built and sealed, and then transferring them to nuclei; or by taking out a swarm with the old queen, as I recommended in a former article, headed "How to make natural swarms artificially." By taking out a swarm in that way, and leaving the old swarm on its old stand, the bees do not appear to be in such a hurry to raise queens, as when deprived of their queen and placed on a strange stand. Old swarms or nuclei deprived of their queens at unnatural seasons, are more apt to raise eight or ten days' queens, than they are when deprived at the natural season for raising queens. Queens raised in a strong nucleus, or a strong swarm, when forage is abundant, I am inclined to think are better than those raised in small nuclei, weak swarms, or when forage is scarce, on the same principle that a full fed calf makes a better cow than a half-starved one. I picked up an old paper this summer, with an article in it from Bidwell Brothers, of St. Paul, Minnesota. I saw from it that they have arrived at nearly the same conclusions that I have, in regard to forced or unnatural queens. And in their circular, they advertise and warrant their queens to be all prolific, &c. There are scarcely any queens sent out by queen raisers, that prove to be good for anything the second season, for this reason, they are nearly all forced or unnatural. On the 26th of June, I received three queens from W. W. Cary. They all commenced breeding about alike, and for the first three weeks I could discover no difference between them in their fertility. But after three weeks one began to fail, and by the 10th of August, she died with feebleness and old age. Another commenced failing soon after, but she is still alive, October 17. One out of the three still holds out in her fertility. As I said, in a former article, their purity proves satisfactory. Now, I do not wish to be understood as finding fault with Mr. C., or any other queen-raiser, for sending out such queens; but merely desire to call their attention to the subject. The practical queen-raiser will readily see that there is some reason why a queen raised from the egg, and fed on royal food from the start, should be longer-lived and more prolific than one fed partly on worker and partly on royal food.

I have not been able to discover any difference between a natural queen or a forced or artificial one, provided they were both started from the egg, raised in a strong nucleus, at or about the swarming season, or when forage was abundant. The queen-raiser can easily see that there are other methods than those I have recommended, to secure cells started from the egg. I do not wish to be understood to say that all queens raised from the egg are equally fertile, or that one will live just as long, to a minute, as the other ; but that they will average up to the standard.

Purchasers of queens, here in the west especially, have been badly humbugged by such queen-breeders as Flanders, Kidder, Mack, and a host of others, who have sent out one-striped queens as pure. In ninety-nine cases out of one hundred, the purchaser did not know what a genuine article was ; and unscrupulous dealers have taken advantage of this ignorance to get rid of their impure stock. Mr. Baldridge circulated the report, through the BEE JOURNAL, that Professor Flanders was dead. Well, in his western circulars, he now signs himself W. A. Flanders, A. M. The interpretation of A. M. I suppose means After Money. The BEE JOURNAL has probably killed the Professor, or he has taken an overdose of his bee-charm. Mr. Kidder is now probably dead, as Mr. Langstroth, or his agent, obtained a judgment against him for infringement. For particulars, see Reports of Cases in United States Circuit Court, Northern District of New York, Roswell C. Otis (Langstroth's agent) *vs.* Charles Austin (Kidder's agent). Decision rendered at Utica, March 21, 1866.

ELISHA GALLUP.

OSAGE, IOWA.

[For the American Bee Journal.]

Hybrid Bees.—Bee Stings.

It seems highly improbable that among a multitude of drones from a large number of hives standing near, a queen should be impregnated by a drone from a distant swarm or apiary. The fact, however, that this frequently occurs, seems to be well established. In hiving a swarm of bees on the 17th of June last, I discovered them to be Italian hybrids, about one bee in six or eight having two or three yellow bands—the third band, in those having three, being narrow, and somewhat indistinct. My bees were all natives, and, previous to this spring, I was not aware that there were any Italian bees within six or seven miles of mine, except wild swarms in the woods. Last spring, a neighbor, nearly three-fourths of a mile distant, procured a colony of Italians. A year ago, a swarm of Italian hybrids were found in the woods, two miles from my apiary. This season, two others have been found, one of them nearly or quite pure Italian, at a distance of four and five miles in another direction. As the only swarm of Italian bees known to be in my immediate neighborhood was three-quarters of a mile distant, my queen must have mated with a drone from this swarm—in which case it must have been a young queen, reared to take the place of one lost or disabled in the old hive; or with a drone from a wild swarm in the woods, which is much more probable, as there was no appearance indicating the loss of the queen, two swarms being cast early in the season, in the regular way.

There is no reasonable doubt that the foreign blood was introduced by a drone from a colony of wild bees, partly Italian. This shows that impure Italians may be reared, where there are no *domesticated* native bees within several miles, as there are always wild bees in wooded townships. There are two other instances in this county where the native or black bees have hybridised with Italians, and in neither case were there any Italian bees kept in the neighborhood.

Speaking of remedies for the stings of bees, Langstroth says: "It may be some comfort to novices to know that the poison will produce less and less effect upon the system. Old bee-keepers, like Mithridates, appear almost to thrive upon poison itself. When I first became interested in bees, a sting was quite a formidable thing, the pain being often very intense, and the wound swelling so as often to obstruct my sight. At present, the pain is usually slight, and, if the sting is quickly extracted, no unpleasant consequences ensue, even if no remedies are used." It is well known that the system may become accustomed to some poisons taken into the stomach, so as not to be immediately affected by quantities that would be sufficient, in other cases, to produce a fatal result; and there seems to be some reason to expect a similar effect from the poisonous stings of insects. But being repeatedly poisoned with stings, in my own case, and some others that I have known, seems to have increased the effect of the poison. If Langstroth's theory had any application to myself, I have been stung enough in former years to make the effect of a sting almost a pleasure; but, on the contrary, while the effect used to be slight, it is now more severe, sometimes producing eruptions all over the body, and frequently headache, and sickness at the stomach. Does one become accustomed to the poison of mosquito bites, so as to make them agreeable? The Rev. Mr. Kleine advises beginners in bee-keeping to allow themselves to be stung frequently, assuring them that, in two seasons, their systems will become accustomed to the poison. A safer way for beginners, and all others, is to handle the bees properly, and avoid testing, in their own persons, the theory of being hardened against the effect of stings. M. O. HOWE.

FAYETTEVILLE, VT., Sept., 1868.

In *Echoes from Cornwall* is a "Legend of the Hive," commencing—

Behold those winged images !
  Bound for their evening bowers ;
They are nation of the bees,
  Born from the breath of flowers ;
Strange people are they ; a mystic race
  In life, and food, and dwelling-place !

[For the American Bee Journal.]

Experience in Italianizing, &c.

By Another Novice.—No. 4.

Wintering Bees.

Mr. Editor:—I had intended this for the September or October number of the Bee Journal; but being very busy during the summer, and seeing several pieces on the same subject in the Journal, I have kept it till rather late. My attention was recalled to it the other day, when reading the article on wintering bees in the open air, or on their summer stands, by Mr. J. T. Langstroth, page 72, of the October Journal. I do not like the trouble of putting bees in cellars, or burying or housing bees in this latitude. I think it wholly unnecessary. I will just give my experience the two past winters, and leave the readers of the Journal to judge for themselves, which is the least troublesome and least expensive way.

In the fall of 1866, I had nine stands, four in frame hives and four in common box hives. The four frame stands, in two of which Italian queens had been recently introduced, with one of the box hives, were too weak in stores for winter. These I fed with brown sugar syrup, *knowing no better then;* and to make sure of the two Italians, I mixed half honey with their syrup.

I took off the honey-board and spread a piece of warm carpet over the tops of the frames; then stuffed the caps with dry straw or shavings, and put them on. I merely opened the holes of the box hives and put on wire cloth, then put the caps on stuffed as above. One of the Italians being weaker than the other, and being unwilling to lose it, I took a bundle of rye straw, flattened it to four inches thick and a little wider than the top of the hives, thus making a flat mat, and sewed a piece of tow linen around it. I laid this immediately on the frames, and spread a piece of oil cloth over, to keep off the rain; placed a board on top, weighted with a stone, to keep the wind from blowing all off—the caps being also left off. *Don't smile at this, reader, but wait and see the result.* This stand wintered so well that I wintered it again with the same mat last winter, and also three others prepared in the same manner.

In January I examined the five weak stands, to see if all was right. Found the two Italians in good condition, dry and warm; but the other three were dying of dysentery. Two of these had about five pounds of honey remaining but could not get access to it. I carried them into a warm room, and tried to save them by uniting the three together and feeding them; but this being in a cold spell of weather, they all died in a few days. I rather attributed this to the brown sugar I had fed them on exclusively, as each hive still had sealed honey; though they were only half filled with comb.

On the first of February, I examined the two hives of Italians, and found them all right, dry and warm, with plenty of honey. On the 15th I examined them again, with the same result. I re-examined them on the 8th of March, they still had plenty of honey, with some brood.

The six stands wintered well, and from them I increased my stock to eighteen the next season—all of which I wintered successfully, in the same manner; only setting the weak ones in larger boxes, and filling the space between with shavings, sawdust, straw, &c.; and covering the tops well, to keep out dampness. I also drove down stakes, and fastened boards around all sides, except the front; and stuffed the space between with straw.

All my hives face the south-east, and the entrances are left open all winter, only being contracted to half an inch in cold spells. I am confident that some of my weak stands had not over ten pounds of honey last fall, and I had no idea of wintering them; but concluded to try as an experiment, and the result was a complete success, for I only had to feed the two weakest in April, when the supply of honey was exhausted by the brood. I think this mode fully as good as, and much less troublesome and expensive, than Mr. Langstroth's. The mats can be made by any person in a few hours, and will last for years if kept in a dry place in summer. I would here say that my apiary is so situated as to break the force of the wind, and receive the warmth of the sun most of the day.

I began last spring with the above eighteen stands, but as the season was so bad, I only allowed five first swarms. I never knew or expect again to see such a season as this was. I am now reduced to eighteen stands, and will select fifteen of them for wintering, all of which I am feeding on coffee sugar syrup.

A.

Lowell, Ky.

[For the American Bee Journal.]

What's the Difference?

Mr. Editor:—Will Mr. Francis be kind enough to inform us how much more his bees are disposed to steal honey, where the cells have been *unavoidably* broken by an *inexperienced* hand, than where the same chance occurs by the use of a *thin-bladed knife* in the *hands of an expert?*

I have tried both ways, and cannot see but that my bees are as well pleased with the one as the other. In fact they do not seem to be very choice about the *way*—they seem to be more interested about the *honey;* but perhaps it is because I have neglected their moral culture. This seems to be the only point between us, as he admits that his bees are naughty enough to fill their frames so full that there is difficulty sometimes, and this is all that I claimed. I do not think Mr. F. has demolished a single

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☞It is an error to say that queens and drones will not feed themselves. I have often seen queens eating honey out of open cells; and have noticed drones doing so hundreds of times. —Berlepsch.

[For the American Bee Journal.]

Wintering Bees, and other Matters.

It is settled beyond a doubt in my own mind, by the experience of others as related in the Bee Journal, and by my own experience for several years in the apiary, that bees to winter well, must have sufficient ventilation to carry off the excessive moisture which accumulates in well stocked hives. This moisture arises partly from the exhalations from the bodies of the bees, but mostly, I think, from the surrounding atmosphere, which constantly holds in suspense a greater or less amount of moisture, according as its temperature is higher or lower. The warm atmosphere of the hive is capable of holding a considerable quantity, until is condensed by coming in contact with the cold walls of the hive, at some distance from the cluster of bees. There it condenses, first into minute drops of moisture, and afterwards, if the cold increases, into frost. The constant accumulation of the quantity, by repeated thawing and freezing in a hive that has no efficient means of ventilation, gradually encroaches on the space occupied by the bees, finally reaching those on the outside of the cluster. These grow benumbed, cease to eat, lose their vitality, grow cold, the frost forms on their bodies, and they die where they stand. The frost continues to penetrate the cluster, if the cold weather is prolonged, until finally the last bee dies covered with frost. The warm days of spring then melt this frost, and on examination, the whole mass of bees are found dead and as wet as if just dipped from a basin of water. I found one hive in that condition last spring. The entrance to this hive was left open, but the honey-board was left on tight, without any upward ventilation, as an experiment. All my other colonies wintered well on their summer stands, having their entrances open three or four inches wide, and the front and rear openings in the honey-boards (half an inch wide, and extending the whole length of the hive) uncovered, but the middle opening closed.

For the coming winter I have adopted Mr. Langstroth's plan with some modifications. I shall omit the outside covering of the hive, believing that it is better to have the hive of a single thickness of board, say seven-eighths of an inch, in order that the heat of the sun may easily penetrate it, and warm up the hive almost daily, thus giving the bees an opportunity to bring to the central part of the hive fresh supplies of food from the outer combs. This plan *may* lead to a somewhat greater consumption of honey; but if a swarm of bees will give its owner from fifty to one hundred pounds of surplus honey in a season, as mine have done the past summer, he ought to be entirely willing to have them eat all they need during the winter. At all events, one of two things must be done, to winter bees successfully, in addition to their having a supply of food and thorough ventilation—they must either be kept in a repository where frost cannot enter, as a cellar, trench, ice-house, or the like; or they must be put where the sun can warm them up occasion-

I have removed all the honey-boards, placed two one-half or three-quarter inch strips across the frames, and covered the whole top of the frames with any old woolen garments that could be found about the house. These need no cutting or fitting. Pack them in as you would pack a trunk, (the roof or cover of my top box is movable, and I like it much better than the old plan of having it nailed on), two, three, or half a dozen thicknesses will make no difference. The moisture will pass through as readily as the insensible perspiration of our bodies will pass through our best clothing. The hives will remain dry and the bees warm. I have no fear of losing a single swarm the coming winter, although several new ones which I bought are quite weak, owing to the sudden close of the honey harvest a month earlier than last year, in consequence of the drouth.

I like the plan of using small surplus honey boxes, such as are described in the Bee Journal for May or June, The bees worked in them readily, three new swarms filling, with the nicest honey I ever saw, sixteen of them each, (the boxes weighing three pounds and from three to four ounces a piece), even with our short honey harvest. Two of the colonies were double swarms of black bees; and one, a single swarm of hybrids, from a black queen.

I am satisfied that hybrids are far better workers than black bees, and believe it would pay any bee-keeper to have at least one Italian queen in his apiary, just to furnish Italian drones to cross with the young black queens, even if he made no further use of her. I recently visited the apiary of Mr. William J. Moore, of Danville, Kentucky, consisting of sixty or more colonies. He introduced an Italian queen to one of his colonies five years ago, has never bought any since, has never raised any artificially, has increased his colonies only by natural swarming, and yet nearly every one now shows marks of the Italian bee, notwithstanding his Italian queen died the second season, and he got no pure queen from her.

A word about my best hybrid queen. It may seem absurd to some to speak of the excellence of a hybrid queen. Mr. Langstroth pinches their heads off; but I like them. Mine is a grand-daughter of a beautiful hybrid, and is a most prolific mother. She first attracted my attention last summer by coming off with a prodigious swarm as late as July 26. She could not fly. As the bees began to return to the parent hive before I could hive them, clustering in the portico and over-running the whole front of the hive, I removed the parent hive to a new location and put a new hive in its place, with a comb of brood inserted. Then, with a wing and a dust pan, I removed most of the bees from the portico to the new hive, thus forcing a new swarm. Fortunately the queen was with the bees thus removed, though I did not see her at the time. In six days they had built eight new frames of comb, which were filled with brood and eggs. On my return from three weeks' absence, the hive was full—thirteen frames—with combs, honey, and an immense amount of brood. This season, after filling sixteen six-pound boxes, this hive threw a large swarm; but the queen not following them, they returned as they did last year, and I treated them as before, making a new swarm with the wing and dust pan. But this time I did not get the queen, as I learned from the queen cells started on the brood comb given to them. On returning after an absence of about four weeks, I found a large cluster of bees adhering to the under side of the mother colony. A closer examination revealed comb and, to my great surprise, brood, and plenty of it. Here, then, was my prolific hybrid queen doing an outside business on her own account, having left a youthful queen and a prime colony inside to take her place. I thought of Novice's "Giantess," and concluded I had got her equal. But what to do? was the question. She could not live there all winter with her swarm, and she *must* be saved. She had evidently attempted to follow a second swarm, had fallen to the ground, crawled up one of the legs of the hive, and established her headquarters underneath its bottom, where her faithful followers found her and took up their abode. Seven combs were built, the longest nine inches, and reaching to the ground about six inches, all *crammed* with brood mostly capped. These combs I cut away from the hive very carefully, one at a time, brushed off the bees into a new hive set on the site of the old one, fastened the combs into frames with strips of paper cut from flour bags, as recommended so highly by some writer in the Bee Journal, and congratulated myself on having created a fine new swarm from almost nothing. This was all done in the morning. I felt it necessary to take one look at them towards night, to see what a nice thing I had done; when, to my utter surprise, I found all the combs laying in one mingled mass of confusion on the bottom of the hive. The bees had in that short period gnawed away the paper strips, and hence the downfall of the combs. There was a double handful of the prettiest paper pulp you ever saw, on the bottom of the hive and among the combs. Had the queen been killed by the downfall? Luckily, no! I found and caged her, removed the comb, cleaned out the pulp, remembered seeing at a neighbor's some slats made for Venitian blinds—wouldn't they be just the thing to hold the combs in the frames? Tried them; nothing could be finer; took them out in three days—combs all fastened to the frames; put in on each side, one nice frame of solid honey from the parent hive. They are now in good order for wintering, and the most prolific queen I ever saw is saved. I shall breed from her next season, although a hybrid of the fourth generation. She is also one of the prettiest queens I ever saw—a uniform dark-yellow or mahogany color, the whole length of the abdomen. Who has a pure Italian colony, or any other, that has made, this season, one hundred pounds of box honey and cast two good swarms?

R. Bickford.

Seneca Falls, N. Y., Oct. 1868.

The darker the hive, the more contented the bees.

[For the American Bee Journal.]

Queens Mating Twice, and Color of Italian Bees.

Mr. Editor:—My article in the last Journal has stirred up a hornet's nest, and been the means of putting me in communication with many of your readers.

Many of them take exception to my idea that queens do not *mate* with two drones, and I wish to set them right as to my meaning, as some of them misunderstand me. When I used the term "*mate*," I meant *copulation* which resulted in *impregnation*, and not copulation simply, for I can imagine that a queen might meet a drone and bring home *signs* of *impregnation*, without impregnation having actually taken place; which being the case, instinct would send her forth again, in order that she might be *fertilized*. This explanation of my letter, and of my position on this subject, I am ready to defend against all comers.

In an article in your Journal, I see that some people have an idea that the honey crop has a direct tendency to make light or dark shades. This I do not believe, and can show facts which will do away with the idea. I have two sister queens, one dark and the other light, whose progeny is just the reverse—the dark queen bringing out invariably light bees, and the light queen dark; and this at all seasons, whether apple, clover, or buckwheat was the material from which the honey was gathered. A friend of mine, Mr. W. O. Sweet of West Mansfield, who is largely interested in queen-raising, and who has taken great pains to secure the purest stock, has been engaged in testing this matter of color the last season, by a plan similar to the Köhler, has succeeded in getting both queens and drones of almost any required shade. I have seen, at his apiary, drones on whose abdomen there was scarcely a trace of black—a very light orange marking it as perfectly as the rings on the worker. I am aware, of course, that imported queens generally are quite dark, and that their daughters grow lighter through successive generations; but the working progeny of imported queens is invariably in accordance with the mother color, which would not be the case were it affected by the honey crop.

As this color question is one which may have a direct bearing on the matter of purity, I should like to hear from some one who is posted on the color variations of the "Italian bee" at home.

J. E. Pond, Jr.

Foxboro', Mass., Sept. 12, 1868.

Among the "Farm Items" of the *New York Tribune* lately, is the following:—

"In Australia the bees are as large as horse-flies, and do not sting."

That is, they are about as big as a piece of chalk, and are native, natural non-combatants and non-resistants, who, unable to appeal to the fierce arbitrament of arms, allow themselves to be despoiled of their property and turned out of house and home, without even going to law.

[For the American Bee Journal.]

Bee Management.

Mr. John M. Price wants me to give my method of managing bees for surplus honey.

In the first place we will suppose that each swarm has its combs all worker combs; has been well wintered; and is in the right kind of hive to suit the climate. It should also have honey enough for all purposes, or it will have to be fed. See that every queen is in good condition for breeding early in the spring; and every queen that does not come up to the mark should be superseded by a young one as early as practicable in the spring, for it is useless to expect benefit from a swarm that has an unproductive queen. Some swarms may have too much honey for profit; but this can be remedied by exchanging combs with such as have not enough. All swarms that have not a prolific queen can be doubled, if the season is not too cold and backward; but your swarming must be done early in all seasons, or not done at all, if surplus honey is expected. Do not attempt any increase of stock until the hive is filled with brood. As soon as the weather becomes warm enough, commence moving your empty combs, one at a time, into the centre of the cluster of bees, between two combs well filled with brood. This will induce the queen to breed faster than she otherwise would, on the same principle that raising a partly filled honey box and inserting an empty one under it, causes the bees to build comb faster than they otherwise would. I am aware that this is one of my *assertions*. But try it, and see if you do not gain considerable time by doing so. In all swarms where the hive is completely filled with bees when the spring opens, resort to this method is of course not necessary. If from any cause other than an unproductive queen, you happen to have a weak swarm, it can be built up within itself by this method.

Here, in this section of country, there is no surplus honey gathered until the bass-wood blooms. Last year the bees commenced on it on the 20th of July. This year they commenced on the 8th of July. All hives should be filled, or nearly filled, with comb and brood by the time your honey harvest commences. Then give them abundance of surplus room and free access to the the boxes; also plenty of room below for the queen to deposit her eggs; and there will be but little danger of swarming. Heretofore there has been considerable trouble to keep bees from storing too much honey below; but this trouble can now be obviated by means of the honey-emptying machine. I have taken out a full frame and inserted an empty one. Where there is a young queen, if the frame is inserted in the centre of the cluster and when nearly filled with comb, exchanged with an old queen, I could obtain all worker comb; but if an empty frame be given to an old queen when the bees are gathering honey rapidly, they will usually build too much drone comb.

There will be but little trouble about swarming, with any stocks except those from which you have not taken an artificial swarm. There are exceptions, however. This season I had a young stock cast a large swarm while they were filling their hive, before it was full; and what was more peculiar about it, they had made no preparation for swarming. Not a queen cell of any description had been started, neither did they commence any till the second day after casting the swarm. When I hived the young swarm, I gave them a frame containing brood and honey, and on examining them four days after, I found they were raising queens; so that the old queen was lost in some way.

In localities where the main dependance is on white clover, it would be advisable only to double the number of those stocks that have a good queen; but here I can make two good young stocks from each old one, by having a fertile queen for each swarm early, and yet have all three in as good condition for storing surplus honey as they would be if I had only made one. New beginners are very apt to want to commence making swarms before the old hive is filled with brood; but that is bad policy. Heretofore we have had to have our surplus stored in boxes, and must either have a large surplus room for storing honey, or have the hive so arranged that when a box was partly filled we could raise it and insert another under, otherwise the bees would be idle during a large part of their time. But with the honey-emptying machine, we shall probably have to adopt Novice's plan, or be left far in the rear. The Langstroth hive, either in the form I use it, or in the shallow form, is well adapted for that purpose—that is for a two-story hive. There can be no question in the mind of any practical apiarian on this point, for we know from actual experience, that, if bees can be supplied with empty comb, they will at times store almost incredible quantities of honey.

Decide as early in the season as possible (and this decision must be governed somewhat by the kind of spring), the amount of increase of stocks you wish to make, and start the requisite number of queens, so as to have them all fertile and breeding early. The next operation is to commence equalising, by either taking young bees only a few days old from strong stocks and giving them to the nuclei, or taking sealed brood from the strong and giving it to the weak.

By this method you can have all equal, and ready for storing surplus when the honey harvest commences. By taking young bees from a stock that has an old queen, you leave all the comb in the hive, and there will be no opportunity given to the bees to build drone comb instead of worker comb. You can take comb from a strong stock that has a *young* queen, and by inserting an empty frame in the centre, you will have worker comb built almost invariably. I have never failed, by commencing early in the season. The great tendency of all stocks is then to build worker comb, (especially if the queen is prolific), so as to secure an increase of workers. But later in the season the tendency is to build store or drone comb, for storing supplies. So you will please take notice, and govern yourself accordingly. Now this article suggests another; and that is, how to raise all prolific queens. But don't be in a hurry; my bee-keeping was not all learned in one day, neither can I give the whole theory of bee-keeping in one article. Wait with patience, and we will endeavor to have the Temple completed by and by. You will remember that I do not recommend a small box for nuclei, but a hive with a small frame, and a division board, for practical purposes. The person who is raising queens for market will want small boxes.

E. GALLUP.

OSAGE, IOWA.

[For the American Bee Journal.]

Ill Flavored Honey.

MR. EDITOR:—My bees did nothing all the season, till late in the fall when the sunflowers were in full bloom Then they commenced storing honey in great quantities. They gathered from fifty to eighty pounds, per stand, in two weeks. Some of them filled all their surplus honey boxes, and when I took some of the honey for eating, I found it tasted as the sunflowers smell. It is scarcely fit for table use. There are hundreds of acres of those flowers growing here.

Now what I want to get at, is for some bee-keeper to let me know through the BEE JOURNAL, whether bees will work in a prosperous season on flowers yielding distasteful honey?

H. FAUL.

COUNCIL BLUFFS, IOWA.

☞We presume that the sunflower here referred to is one of the numerous varieties of wild aster—probably the A. *sericeus* or the A. *sagittifolius;* though we do not know that either of these blooms so late in the season. We have no knowledge of the honey-producing qualities of these, nor of any except the New England aster; but suppose that bees will gather from the blossoms of the variety complained of every fall, if honey is secreted by them.

In the construction of their cells, the bees, by a peculiar instinct, have always used the mathematically correct angles, which give the greatest strength to support pressure, with the greatest economy of materials; and this insect construction, mathematicians and engineers have followed as the proper angle at which dock-gates should be placed, so that the timber employed would yield the most favorable result. The bee's cell is in fact, an elongated dodecahedron; and consequently the angles of the trihedral roof and base can be no other than those of the true geometrical solid; the obtuse angle, on the face of which, produced by the union of two cubes, is the prime angle which affords the greatest resistence to water-pressure in the dock-gate.

The subterranean habitations of the humble-bee are of a much ruder architecture than those of the hive bee. The cells are made of a coarse kind of wax, but placed very confusedly, not exhibiting the geometrical precision observable in the latter.

[For the American Bee Journal.]

Queens by Mail, and Illustrations.

Mr. J. H. Townley, of Tompkins, Jackson county, Michigan, sent me an Italian queen by mail, which, although delayed four days in the mail, was safely received and successfully introduced to a colony of black bees. (By the way, I think Mr. Townley has the pure Italians, as I have seen some very fine bees raised from queens purchased from him, this season; I also believe him to be a very reliable dealer). The box in which the queen was mailed was a neat little pine one, about two inches cubic measure inside, with a piece of honey secured to one side by means of a small wooden skewer; wire cloth over the bottom, and a half-inch hole in the top, also covered with wire cloth. I see by the stamps on the box that he paid letter postage, being twenty-one cents. Now, I think bees should go through the mail the same as seeds. Please ascertain and let us know.

I should like to have Mr. Quinby tell us which kind of a box he likes best for mailing queens, as he says he has tried several. I wish also he would describe his *new non-patented* hive. As I see he has no notion of impoverishing himself by getting his hive patented, perhaps he can spend a little time in describing it for the benefit of the readers of the JOURNAL.

I agree with Mr. J. Davis, in "*pitching in for the pictures and explanations*" of all the hives in use. All will agree that the illustrations of the improvements in implements of agriculture seen in all the agricultural papers of the country are an interesting feature in those papers; and I can see no reason why the illustration of a good hive, or any tool used in scientific bee-culture, should not be interesting in a journal devoted exclusively to apiarian science. I believe that, in describing anything in the JOURNAL, the *dimensions* should be given as well as the shape. In the September number, Mr. S. B. Replogle, in describing his hive, and in his circular also, which I have, gives no dimensions. Suppose a person should make one too small, and lose a swarm of bees in consequence, would he not condemn the hive with all its *points?*

JOHN T. ROSE.

PETERSBURG, MICH.

Aubrey, in his *Natural History of Wiltshire,* describes Hampshire as having the name of producing the best honey in England, and also the worst. "The forest honey is the finest; but the south of Wiltshire having much the like tufe, must afford as good, or little inferioure to it. Mr. Butler, of Basingstoke, who wrote a booke of bees, and had a daughter he called his honey-girle; to whom, when she was born, he gave certain stocks of bees, which produced 400*l.*, as her marriage portion." Mr. Harvey, of Newcastle, got 800*l* per annum by bees. Aubrey mentions an improved hive by Mr. Hooke, and other ingenious contrivances of his time.

The Egyptians, when they celebrated the feast of Mercury, ate honey and figs.

[For the American Bee Journal.]

Novice's Ideas on Wintering.

Mr. Editor :—We are going to put all our bees into the cellar. Does any one care to know why ?

Well, you remember the one weak swarm (or rather quart of bees) that we kept in the cellar last winter, which consumed less than one frame of honey, and of which so many were lost, after being set out a day or two ? Though they did become very weak, yet, without any assistance in the spring, except the rye and oat meal, they became a strong colony, and have yielded us more than fifty pounds of honey. Now had they been left out with the others, they would assuredly have died, as did three or four much stronger ones, and we should have had nothing but empty combs. (By the way, Mr. Editor, we will pay twenty-five cents each for frames of empty worker comb ; so that a Langstroth hive from which the bees have died, is worth $2.50, for combs alone). Now, if we can save ten pounds of honey from each stock, by carrying them in the cellar, (which we do not doubt), we shall have three hundred and fifty pounds more ready for our honey machine next spring. We shall place a thermometer there, so as to keep the temperature as near 35° or 40° as we can.

A great deal is said about *keeping bees quiet*, yet the weak swarm first mentioned was struck every day *for three months*, with hardly an omission, to see if they were alive ; and we are going to "look at" and "punch" our bees this winter whenever we feel inclined to do so.

We cannot help thinking Mr. Langstroth's new plan for wintering is an "awful sight of trouble," and that it will not answer the same purpose as keeping them in a cellar at a temperature of about 40°. Will not the same objection come in that was made to double hives, that the sun cannot warm them through as quick as a thin hive ?

We have reduced our forty stocks into thirty-five. The fall pasturage was poor ; and we hope to have thirty-five stocks *sure* next spring.

Do you not think, Mr. Editor, that our large yield of honey, this poor season, was mainly owing to the large amount of *rye* and *oat* meal fed last spring ? That it saved their honey in some way or other, we cannot doubt. We think you should advise, at the proper season, *in large letters*, the use of RYE AND OAT MEAL ; but then how few would take the trouble to provide it ?

We hope every bee-keeper will carefully read Mr. Gallup's article, on page 93, of the November number of the Bee Journal. It seems as if it was written purposely for our locality.

Many have called on us to get our "secret" for "luck" in bees; and those that did not know more than we could tell them, were sure to get everything wrong, in spite of books and Bee Journals, given or lent to them. We do not mean to say *all;* but, alas, too many, for we have a *third class* here, though they are only too much like "*angel's teeth and hen's visits*," few and far between. We have little fear that the business will be "run into the ground," by two many engaging in it; for there are few that will take the necessary care and trouble to "*do the right thing at the right time*," even if they are convinced of the large profit to be realized on time and money invested.

When equalizing our stocks a few days ago, we found, as we did every season before, our Langstroth hives far heavier than the Americans ; yet they have furnished more than twice the quantity of honey this season, and we must confess that we cannot see clearly why either. With the practice we have had we do not find the least trouble in removing frames.

Bushels of rye and oat meal, and rows of jars for honey, miles in length, in anticipation of the season of 1869, are already floating before the vision of Novice.

[For the American Bee Journal.]

Hives, and Wintering Bees.

Mr. Editor :—I am often asked by beekeepers, as I meet them and by letter, what kind of hive I use, which kind I like best, how I winter my bees, and what I think of Langstroth's mode of wintering, &c., &c.; and as your paper is the means of communication to all who care to know anything about these matters, I reply by saying that I use Kidder's Compound Hive. Do I like it ? Of course I do, or I should change it for a better one. But I do not say this is the best for all to use, though I do think that a hive nearly square inside is the best for cold climates like Wisconsin. And I say to all, *use movable frames or no hive.*

I gave my method of wintering bees in the Journal some time since, and will now say that I have tried most of the plans recommended, and think any temporary arrangement too expensive, with too much time, too much litter with clamps, loose boards, &c. I say, make a *suitable permanent house.* It need not be expensive, and will last for years. I set my bees into their winter quarters as soon as severe cold sets in ; remove the caps entirely, and put on the straw mats, which are made of soft oat straw, and so constructed that they fit tightly on the top of the hive, with a space of three quarters of an inch between the straw and the frames. This allows a free passage for the bees to all the combs, and a warm place for them to cluster.

Perhaps ashes, woolen rags, or something of this kind may answer ; but nothing is so cheap and clean to handle as the mat made in a frame with strips of lath. Mr. Gallup has pointed out the three classes of beekeepers to perfection, and I have come to the conclusion that it is time spent in vain to try to educate class No. 1, and class No. 2 is not much better. Yet, with all my care, I cannot make bees gather honey where there is none ; and bees in this vicinity have barely gathered enough to winter on, and my own table will go unsupplied this winter. I have many things to write, but time and space forbid now. B. S. Hoxie.

Cooksville, Wis., Nov. 10, 1868.

[For the American Bee Journal.]

A Surrejoinder.

Mr. Editor:—I see, in the November number of the Bee Journal, that Mr. E. Gallup is out with a "General Rejoinder." As to his explanations to others I have nothing to say, but his notice of my article is some more of his "buncom." What right has he to put words in my mouth? How does he know what I would say to his explanation, if he had made one? Well, I suppose he knew it about as well as he knew that the Langstroth hive was "rejected all over the West"—or rather "the shallow things," as he is pleased to call them. Well, he may call them what he pleases, but I simply say that it is not so. The Langstroth hive is not rejected all over the West, as asserted by Mr. G. My visit this fall through the West satisfied me that Mr. Gallup's assertion is not correct, and I can conceive of no good reason he could have had for making it, except to prejudice the public mind against the hive. This fall I attended a public sale of bees in western Illinois, where there was a large quantity of bees sold in different kinds of hives. Three or four hundred persons were present, and those bees in the Langstroth hives sold from five to eight dollars per hive higher than those in any other kind of hive, and all that I heard say anything at all about hives gave the Langstroth hive the preference. Thinks I, this does not look much like these hives being "rejected all over the West."

Some wood be wise beekeepers in our country know that Mr. Langstroth has got up one amongst, if not the very best hive now extant, and has written the best work on the culture of the honey-bee extant, and they imagine it makes them look smart to find fault with and slander his hive. Do not understand me to say that his hive is perfect, or that no one has a right to reject it and use some other if he pleases. But I do object to these wholesale aspersions on other people's credit. In all my acquaintance in the West, I do not know of a single person that has ever used the Langstroth hive and then rejected it. No doubt there are many such cases, but they are not "all over the West," as Mr. Gallup would have us believe. Hoping that Mr. G. will point out the defects of the Langstroth hive, and condemn it on its demerits, whatever they be, and not assume to speak for "all the West," I am, as ever,

B. Puckett.

Winchester, Ind., Nov. 14, 1868.

The Beekeeper,

"—— intent from out their straw-roofed hives,
Watches his little foragers go forth,
Boot on the buds to make, to suck the depths
Of honey-throated blooms, and home return,
Their thighs half smothered with the yellow
dust."

A young swarm builds worker comb exclusively at first. Weak swarms, second swarms, and artificial colonies having young queens, rarely build drone comb the first year.

[For the American Bee Journal.]

Rectangular Frame Hive.

Mr. Editor:—I am much pleased with the Journal, and take a deep interest in the various subjects therein discussed, as well as in Gallup's *awful muss;* and, as there seems to be a free exchange of thought through its pages, I write you a few lines to answer the request of friend Davis, of Charleston, Ill., and Dr. S. N. Vickary, of Darien, as well as to set friend J. M. Price, of Iowa, all right in regard to that *non-patented hive* he tells us about in the November number.

First, I would tell friend Price that I consider the hive he describes as one of the best out, and I have had some opportunity of judging, as I have used and bought rights in Davis' Platform hive, Langstroth's Movable Frame hive, the American hive, the Quinby hive, Flander's Triangular and Hoop-frames hive, and also his Book hive, and they all had a lack of convenience in one respect or another, which made them objectionable. I finally lit on the rectangular frame, as Mr. Price has illustrated, and which I will more fully explain when I get my stereotypes, for which I have sent. Suffice to say that I obtained a patent dated October 20, 1868, No. 83,257, which you will find noted in the *Scientific American* of Nobember 4th. Friend Price and I have come to the same conclusion in regard to its value, and I suppose he was entirely ignorant of my hive and claims. I had sent a photograph of it to my brother, W. A. Conklin, of Oskaloosa, Iowa, some time last July or August. I also told Mr. Wagner of it, and referred him to the Patent Office several months ago, as he will remember.

I will give a full description of it, together with specifications and claims, as soon as I get the stereotypes or electrotypes from the foundry.

In conclusion, I would say that I have Langstroth's valuable work on bees, which I consider the best; also Quinby's, King's, Flanders, Adair's, Mitchell's, and the fourth volume of the Bee Journal. I now send you herewith four dollars for the second and third volumes of the Journal, which please send me by return mail. I would not do without the Journal for twice its present price.

Dr. A. V. Conklin.

Bennington, Ohio, Nov. 5, 1868.

[For the American Bee Journal.]

How Much Honey to Winter a Swarm of Bees?

Mr. Editor:—The question is often asked, how much honey will winter a swarm of bees? The following, taken from my memorandum, will assist the inexperienced, showing not only the amount used from December 1st to about the middle of April, but also the difference between the winter months, when they are breeding but little, and later when breeding is going on rapidly.

My bees are wintered in a room about ten feet square in the second story of a large building. The room is double-boarded, with a space of four inches between, filled with tan. Ventilators are so arranged as to be controlled from the outside, without entering the room.

Nov. 27, 1861, bees were weighed and housed for the winter. March 9, 1862, they were carried out and placed on their summer stands. March 12, weighed again. Average loss, per swarm, in 105 days, 10 1-10 lbs.; greatest loss, 15 lbs.; least loss, 6 lbs.; average daily loss, per swarm, 1 1-2 oz. April 12, weighed again. Average loss, per swarm, in 31 days, 4 lbs. 13 oz.; average daily consumption, per swarm, 2 1-2 oz.

Dec. 2, 1863, weighed and carried in bees. March 5, carried them out. Weighed again March 11. Average loss, 10 lbs. 3 oz. in 99 days; greatest loss. 16 lbs.; least loss, 8 lbs.; average daily loss, about 1 3-4 oz. Weighed again April 9. Average loss in 29 days, 4 lbs.; average daily loss, about 2 1-4 oz. Previous to the last weighing they were fed freely with rye meal, and carried in perhaps one pound per swarm, which would make the loss 5 lbs. instead of 4 lbs.

In this locality bees do not usually carry in even pollen until about the middle of April. Nothing is added to their weight except what is given them. The amount consumed during the winter months is mostly honey, as not much breeding takes place, but after being carried out early in March, they begin to breed rapidly; and of course draw largely upon bee-bread.

About the 20th of February, 1867, I weighed three swarms, which had been housed from early in December. They had become only about three pounds lighter, each. They were young swarms, and rather below medium.

C. Rodgers.

West Newbury, Mass., Nov. 7, 1868.

[For the American Bee Journal.]

Italian Eees. No. 3.

Stock to be bred from should be not only three yellow banded; but the bands should be wide, with little or no margin of black on the first band; the other two bands should be very narrow, or half of the body yellow. The drones should be one-half or more yellow, not as dark as those imported from Germany. Queens should be entirely yellow, or at most only one-half brown, *not black.* All queens should be discarded that produce black queens, even when the queen and her worker progeny look to be pure—no matter if they are imported, as such stock will not take favor with the majority of American or German bee-keepers. Well bred queens should produce no black queens; and no queen should be used that has not more than one-half her body yellow, and the rest of the body brown or bronze. Queens and drones vary in color, (Langstroth and others). Now if that is so, use the ones of the right shade to breed from. Make the necessary crosses by breeding out and out; and, if necessary, in and in breeding may be resorted to on special occasions.

J. M. Marvin.

St. Charles, Ill.

[For the American Bee Journal.]

Packing Bee Hives.

For five years I have used hives essentially like the Langstroth standard hive in form, but made of three thicknesses of boards, so separated as to form two independent dead air spaces on each of the four sides and one at the bottom.

The top part, or spare honey chamber, is composed of a cover like the Langstroth cap, fitting loosely over a rim of the same form, but sufficiently small to allow the outside cap to pass over it.

This arrangement, while it does not take much more lumber than the Langstroth hive when made to accommodate two sets of frames, admits of the cover being raised to admit two sets of boxes or frames; while by removing the lid entirely, the top of the hive may be packed to the depth of the main rim with chaff, shavings, old coats, carpets, or other poor conductors of heat, for the protection of the bees, with very little trouble or expense.

I have tried various things, with or without the honey-board, and have not been able to discover any difference, except in expense and convenience. I now use fine shavings, or chaff, without removing the honey-board, as it costs neither money nor labor worth mentioning.

Mr. Langstroth says, "every particle of dampness escapes through the carpets, &c.," and that above six thicknesses he has placed a board, and the upper side would be coated with frost or drops of moisture and the carpets dry. Is it possible that dampness could pass through six thicknesses of carpet and a board, and yet the carpets remain dry? No one would suppose the honey boards on my hive would allow dampness to pass through, when there are no holes in them at all, and they are covered seven inches deep with shavigns packed snugly upon them. Yet in very cold weather the top of the shavings is often damp and frosted, while there is no dampness or frost on either side of the honey-board. In fact, they are so far from being damp as to shrink materially after the packing is put on.

When I made the hive above described, it was in obedience to the fact that cold surfaces, when brought in contact with warm air, at once become covered with dampness or frost. To avoid the *cold surfaces* was to *prevent dampness* in bee-hives, as effectually in *winter* as in *summer.* The facts have fully sustained the correctness of the premises and their application in my triangular hive; and the improved Langstroth hive has sustained the correctness of the reasoning which led to their production.

I have wintered on their summer stands from thirty to eighty stocks of bees in Gowanda, (N. Y.,) for five years. I have used no other hives than the one described and the triangular hive. I have opened them after the coldest nights and shown the combs and bees to my bee-keeping friends many times; and while I have never found frost except at the entrance, I have never been able to find dampness on the combs or honey-boards, even after days of extremest cold weather. The bees cluster up against the honey board as if it were a warm brick.

I consider the double rim, with or without triple walls or packed sides, the greatest improvement ever applied to flat hives, and superior to the plan of Mr. Langstroth, in so much that it is cheaper and warmer when packed several inches deep with chaff or shavings, than it would be possible to make a large apiary as Mr. L. directs.

Allow me here to say to those who have written to me without enclosing a postage stamp, that I am a watchmaker, and have no time to write letters which do not at least pay their own postage. It is true my inventions were patented, to prevent others from getting patents on them. But as I can make more money at my business and keeping bees, than by selling patents, I do not propose to go into the business as a business. Yet I will gladly answer any business letters in a business way.

F. F. BINGHAM.

ALLEGAN, MICH.

[For the American Bee Journal.]

Dividing Stocks—Straight Combs.

I have just been reading Mr. Baldridge's article on page 90 of the November number of the BEE JOURNAL, in which he explains his "one exception" to not having to look up the queen in artificial swarming, as when one has not more than one hive of bees on his premises.

The following plan, communicated to me by Mr. Wedge, of Fon-du-lac, (Wis.,) subject only to that same "one exception," I think a good one:

One hive is taken from its stand, and an empty one placed on it; then each comb is taken from the hive removed, and the bees shaken off in front of the empty hive. Then one of the cards of brood is placed in this hive, which now contains the bees, and the artificial swarm is made and contains the queen, which insures the building of worker in place of drone comb.

Next, into the hive removed, now containing only combs and brood, an empty frame is put to fill up the vacancy arising from taking the said card of brood out; and a second swarm is removed from its stand and this hive placed in its stead. This hive, having no queen, the bees secured to it from the swarm now removed, will proceed to raise one for itself—during which time the only empty frame in it will be liable to be filled with honey or drone comb.

As to devices for securing uniformly straight comb, Mr. A. H. Hart, of Stockbridge, in this State, has one, included in the making of the frames, which I think accomplishes it fully. But, as Mr. Hart will probably describe it for the benefit of the readers of the BEE JOURNAL, I shall not do so at present

L. C. FAIRBANKS.

APPLETON, WIS.

In Hampshire, England, there is said to be a superstition prevalent that bees are idle, or unproductive and unfortunate in their work, whenever there are wars.

[For the American Bee Journal.]

Wintering Bees.

In November, 1867, I put one hundred and three stocks of bees in the basement of my double walled, brick, sweet potato house; the walls of which were sixteen inches thick, with a four inch dead-air space between; and the floor filled up one foot with dry sand, to prevent moisture arising from the earth.

Some of the stocks were in box hives, and others in movable combs. The larger proportion were well filled with honey; but some eight or ten that came off late in August, (some swarms having issued as late as the 25th), were only half supplied. All these were inverted, and flat pieces of sugar candy laid on the combs, to save the honey for spring consumption, when first set out of the house—that being the most dangerous time to feed, from the interference of robbers.

I removed them from the house about the middle of March—all being in very fine condition; and after they were done flying, the hives were free from specks of fæces, showing the bees to be perfectly healthy.

On the 15th of May they commenced sending out natural swarms. (They were Italians, of course). But as the season turned out to be a very poor one, I got only about fifty new swarms; as I feared to divide them, under the circumstances.

I make my frames only seven inches high, in the clear; intending to winter in my house.

In addition to the one hundred and three stocks, I wintered some queens in nucleus hives, with frames only four inches deep.

I did not lose a swarm after setting them out March.

During the winter the mercury did not fall below 40° F. in my room, when it was 10° below zero out of doors.

I do not admit a ray of light in the room, except when I go in with a lantern.

I gave no water to facilitate brooding. Brood was very scarce when the stocks were taken out.

I shall put one hundred and thirty stocks in the same room this winter; and will probably give the results in the JOURNAL next season.

CAMARGO, ILLS. A. SALISBURY.

[For the American Bee Journal.]

Renewing Queens.

In thirty cases of changing old queens for queen cells, none were lost. It may be that the success was in the management. Or it may have been owing to their being Italians. If the latter, it is another good point in their favor.

The bees were smoked with rotten wood, and then fed with honey highly scented with peppermint. The old queens were at once crushed and thrown back into the hive with the bees; and the queen cell inserted at the same time—the nearer ready to hatch the better.

In some cases the young queens hatched so soon that the bees did not start any queen cells of their own. In two instances the queens hatched in my hand, and were allowed to run in the hives on top of the frames.

ST. CHARLES, ILLS. J. S. MARVIN.

THE AMERICAN BEE JOURNAL.

WASHINGTON, DECEMBER, 1868.

☞ THE AMERICAN BEE JOURNAL is now published monthly, in the City of Washington, (D. C.,) at $2 per annum in advance. All communications should be addressed to the Editor, at that place.

Queens and Workers.

Our correspondent, Mr. Gallup, errs in assuming that the queen larvæ are fed in their earliest stages, with food differing in composition or quality from that which worker larvæ receive. This was formerly believed to be the case; but it is now ascertained that, as regards quality of nutriment, all fare alike until near the period of capping. Up to the sixth day after emerging from the egg all the larvæ, whether workers or drones, or those designed for queens, receive precisely the same kind and quality of food, namely, *chyme*, as prepared by partial digestion in the stomach of the nursing workers. To the queen larva, however, this is administered in larger quantity—so plentifully, indeed, and apparently so greatly in excess of its immediate needs, that the nascent insect literally swims in it, or on it. But when the time for capping approaches a change is made in the food, and the worker and drone larvæ are thenceforward fed with a mixture of undigested honey and pollen, while the queen larva continues to receive the accustomed chyme exclusively, still administered with unstinted copiousness.

The longevity and fertility of queens do not, therefore, result so much from the peculiar or superior quality of the nutriment consumed by them in the early stage of their existence, as from its greater abundance and continuous use, and from the enlarged size of the cell in which they are reared, whereby a more full and perfect development of the insect is made attainable and fostered from the instant of its exclusion from the egg. In these respects queens reared naturally by the workers possess, in almost all cases, advantages only partially enjoyed by those artificially bred, and hence become qualified to be more productive and longer lived.

Mr. T. W. Woodbury, of Mount Radford, England, (the "Devonshire Bee-keeper"), has obligingly favored us with a translation, prepared by him, of Dr. Preuss' essay on *Foulbrood*, which recently appeared in the *Bienenzeitung*. We shall present it to our readers immediately after the article on the same subject, from the pen of Mr. Lambrecht, is concluded.

☞ On inquiry, we find that we were under a wrong impression as regards the Kidder hive. In the case referred to in our last number, we learn that the court rendered no decision. Had this information reached us in time, we should have made the necessary correction in Mr. Gallup's article on page 107 of the present number.

A chemical correspondent of a late German bee journal suggests the use of freshly prepared solution of hydrate of lime (lime water) as a specific, to remove pain and prevent swelling when stung by bees. According to him, the poison of the bees is an acid in all respects similar to formic acid, and like it instanty neutralized by lime-water. We cannot test this prescription ourselves, as, with us, the sting of a bee causes slight pain and no swelling—albeit this was by no means so in by-gone years.

A bee-keepers' association has recently been formed at Montreal, in Canada, for the encouragement of bee-culture in that vicinity. The following named gentlemen are it officers: Gerhard Lomer, Esq., of Montreal, President; Dr. Webber, of Richmond, and Thomas Valiquet, Esq., of St. Hilaire, Vice Presidents; John Lowe, Esq., of Montreal, Treasurer; S. J. Lyman, Esq., of Montreal, Secretary; and J. J. Higgens, of Cote St. Paul, Mr. Goodhue, of Danville, and Mr. Piper, of St. Gabriel Locks, Committee.

☞ We have in hand still a large number of communications from valued correspondents, for which we could not make room this month. Though some of them might be in season *now*, they will not spoil by being held over, and shall have early attention.

We expect to begin the coming year with increased aid from contributors; and hope to complete arrangements to have in each number at least one illustration, expressly designed and engraved for the JOURNAL.

The Egyptian Bee.

In relation to these bees, we extract the following from a letter recently received from Mr. Woodbury, of Mount Radford, England, known to our readers as the "Devonshire Bee-keeper."

"Referring to your note appended to my communication, which appeared on page 18, vol. 4, I wish to say that the letters of Messrs. West, Lowe, and S. Bevan Fox, confirming my statement as to the ferocity of the Egyptian bee, appeared in "*The Journal of Horticulture*" immediately after the conclusion of the series of articles from my pen, which were copied by you.

" When writing to the Rev. Mr. De Romestin, at Baden Baden, I told him that I found the Egyptian bees 'the most ferocious little wretches it is possible to imagine.' His reply was that they 'bear everywhere the character which you give them ;' and a correspondent at Capetown, Africa, assures me that it is there quite as ferocious as I found it in England."

We have no personal experience of the temper of these bees ; but it seems doctors will differ in opinion even on so fine a point as the sting of a bee. In a letter from an American friend, speaking of the ill success of some of his importations of Egyptians, he says :—

"One stock remains, with the original queen. I have good reason from the uniformity of her progeny, queen and worker, to believe her pure. I do not find them as vindictive as they have been described by Mr. Woodbury."

We hope he may be successful in wintering them, and that the question may be satisfactorily settled next summer.

A correspondent desires to know, through the JOURNAL, whether Sorghum or Imphee is good for bees. Can any of our readers give him the desired information ?

[For the American Bee Journal]

Scarcity of Honey, and a Queer Queen.

MR. EDITOR :—I have thirty stocks of bees, which lack nearly the whole of having stores for winter. Would you feed sugar, (no honey to be had here), and if so, the best quality, or the cheaper ? If I feed the best it will cost me about one hundred dollars to put them in condition ; or would you let them " slide out " and take stock in *tanning?* For myself I would prefer not to take stock in that trade. I do not doubt it will *pay some ;* but I hope it not quite so sure as you recommend. With your consent, I will continue the bee-keeping business to the best of my ability.

This has been with me the poorest season I ever knew of, or heard of, for bees. Hives that contained from twenty to fifty pounds of honey last spring when set out, do not now contain so many ounces. And why is it? I am asked nearly every day, why it is that bees have made no honey this season. Why, my neighbor says my bees are going back on me ; they have not done a thing this season. I tell him there was no honey to gather, and that is reason enough for not doing anything. But, says he, there was as much white clover, basswood, buckwheat, &c., this year as last, and my bees never did better than then; why is it they do not prosper this season ? Just exactly the question I would like to ask the man that knows why. This season has neither been dry nor wet, but to all appearances (except the result) a good healthy one for bees. As this is something over which we have no control, perhaps we should not trouble ourselves about it ; nevertheless, I am anxious to know what the matter is.

I have raised any amount of Italian bees this season, but as my stocks were not in condition to multiply and divide, but in a good subtracting condition, I amused myself by destroying my hybrid queens, and introducing others of the same stripe ; for if there is anything I find difficult about the business, it is getting a queen mated to suit me. I have had queens make two successful trips each, to meet the drones, and they failed to suit me. I had a queen from Mr. Langstroth last season, which I should judge had made half a dozen such excursions, as she produced pure marked workers during the balance of last season ; this spring, well-marked hybrids ; during the summer, *all* black bees ; and *now* she is the mother of well-marked Italians again. I know her to be the same individual, by a clipped wing. How do the doctors explain such conduct, unless it is that she met two drones ?

I had a queen this summer make two excursions. She was absent eleven minutes ; returned and remained about five minutes, when she came out of the hive, left again, and was absent thirty-one minutes. She returned with unmistakable evidence of having met a drone on each occasion.

E. H. MILLER.

TONICA, ILLS., Oct. 9, 1868.

☞By all means feed your bees, to keep them from " sliding out." The hundred dollars so spent will be a better investment than if put in hides. It is bee-keeping and not tanning that we *recommend*, as a reperusal of our remarks will show. German apiarians tell us they never have more than one very poor honey year in fifteen, and as the past season appears to have been an unpropitious one, in Europe as well as in this country, we have probably seen the worst of the matter for a pretty long cycle. Therefore keep up your spirits, and keep your bees alive. Would you advise a grazier to let his oxen starve the coming winter, because pasturage during the past summer was short, and they did not grow fat on it? It is true he might thereupon go into the tanning business with their skins as so much "stock in trade" to begin with ; but you could do nothing with your " out-slided " colonies, unless perchance strangury should become epidemic throughout the land, and the doctors, following the prescription of the ancient leeches, should resort to *bee tea* as a specific, and bid apothecary prices for dead workers—two peradventures not likely to happen.

You not only have our full and cordial "consent" to continue the bee-keeping business, but we should much regret to find so close and careful an observer abandon it. Your observations on queen bees are not those of a man who "seeing, sees not." They corroborate similar observations made, both in this country and in Europe, within the last eighteen months, which will probably serve in the end to remove from the category of mysteries certain puzzling phenomena which physiologists have not yet been able to explain satisfactorily even to themselves.—**Ed. A. B. J.**

[For the American Bee Journal.]

Honey Dews.

On the 31st of May, 1868, there was a heavy honey due in this vicinity, so that the bees carried in large quantities of it until two o'clock in the afternoon. That night there was quite a heavy shower. On the morning of the 11th of June there was another very heavy dew. Bees commenced gathering at break of day, and gathered all day long and next morning till ten o'clock, when we had a shower of rain which washed it all away. This honey dew was on the leaves of oak, poplar, elm, basswood, hickory, walnut, grape vines, hazel, grass, weeds, and leaves of all kinds.

I called the attention of quite a number of neighbors to the fact, because Mr. Quinby says there is no such thing, or that it must be the exudation of some insect. Now, I never saw a honey dew before so early in the season. I have repeatedly seen it in the month of August in Canada, and once in Wisconsin in the same month, but then only on the leaves of some particular trees.

In the two cases observed, the weather had been quite warm, and we farmers sometimes call it quite *muggy*—that is, a peculiar atmosphere, for some ten or twelve days previous. If this was the exudation of any insects they must have been on the wing, for the very top leaves of the trees were covered with it, as well as the grass where there were no trees. I could discover none on the open prairie on the 31st of May. After two o'clock it dried up so much that the bees ceased gathering, but yet it could be plainly seen. E. Gallup.

Osage, Iowa.

☞We have never seen honey dew earlier in the year than about the beginning of July, and then only on the leaves of chestnut trees. It overspread the leaves evenly, and was glossy and clammy, like a thin coat of varnish. The bees continued at work as late as nine o'clock in the morning. The weather was clear and pleasant—temperature at about 85° F. We never saw aphides, or other insects, on the upper or under surface of any of the leaves we examined.

[For the American Bee Journal.]

Common Failures.

Mr. Editor:—On page 132, Vol. 3 of the Bee Journal, O. C. W., quotes the conversation of some person with himself, pertaining to the failures in bee-keeping, as follows:—"My father before me kept bees, and I have kept them ever since; and we know how to keep them by this time, you see. But now the patent hives, cold winters, millers, mould, and robbers, have ruined my bees. So you see how difficult it is to keep bees in our days."

O. C. W. says—"Now there is no fiction about this. It is a fair representation of the sentiments of a majority of bee-keepers in the country, very many of whom, though good citizens and intelligent men in other respects, are totally ignorant of first principles—a knowledge of which is indispensable to profitable bee-keeping. What we want then is to introduce the Bee Journal into every bee-keeper's family. This would create an interest in the subject; and then, with the aid of movable frame hives, the business can be reduced to a system, and made profitable, instead of depending on *luck*, as many bee-keepers imagine."

I think, of course, O. C. W. did not intend to imply that movable comb hives are *necessarily patent* hives. Neither do I suppose that he intended, on the other hand, to admit that patent hives, as above set forth, are the cause of the common failures in bee-keeping. But should this should be true, the sooner patent hives are dispensed with the better. That the other causes enumerated are often the source of failures, secondarily, I am ready to admit. Yet I do not admit that the hive, be it a patent one or otherwise, is the sole or primary cause of failure. There must be other causes combined with the hive, to make it prove a failure in bee-keeping.

I think I am right in the opinion if we "introduce the Bee Journal in every bee keepers' family," that it will ever show that the failures in bee-culture are mainly to be found in some other original sources, not enumerated in the above quotations Why do the "cold winters" kill our bees? Is it because we do not sufficiently protect them from the cold?

Why do the "millers" destroy our bees? Is it because we do not keep the stock populous enough to cover and protect the comb from the depredations of moth?

Why does the "mould" prevent bees from doing well? Is it because we do not properly ventilate our hives, and thus let them become too damp?

Why do "robbers" interfere with our success in bee-keeping? Is it because we let our stocks become so weak that they cannot defend themselves, and because we do not protect them as much as we should in all cases?

From these questions I feel satisfied that the readers will conclude with me that the *common failures* are from causes *back* of the ones indicated in the quotations. Permit me to suggest that one of the chief sources of common failure is to be found in the *want of sufficient pasturage* from which bees can secure ample stores for the support and rearing of populous stocks—stocks sufficiently populous to generate the amount of heat requisite to protect them from the cold, enable them to save their combs from destruction by the moth worm, and to defend themselves, by proper aid, from the assaults of robbers.

Will the *general experience* and enlightened knowledge of bee-keepers and the BEE JOURNAL, coincide in this, that to have a good stock of bees it must be populous, and have ample stores for its support, in all cases? Remove the latter, and the most prosperous stock will fail, and the secondary causes I have referred to will complete the destruction.

Now, by the above, do not understand me to say that there are no other primary or original causes of common failure in bee-keeping, than the want of sufficient pasturage for the bees. But I do say that this is *one of the chief sources* of failure and the want of profit in bee-culture.

The loss of a fertile queen, from any cause, would be another source of certain failure, in the most populous stocks of bees. The remedy here is not the bee-pasturage, but the introduction of another fertile queen, or young larvæ from which to rear one in the proper season.

The sooner, then, we introduce the proper means to make bee-keeping prosperous, the sooner it will become profitable; and those "enlightened men" become "systematic" bee-keepers, and chance *luck* be changed into something worthy of the "country's attention."

J. DAVIS.

CHARLESTON, ILLS.

[For the American Bee Journal.]

Bee Feeder.

A good bee-feeder can be made out of the usually castaway tin fruit and oyster cans. At the tinsmith's you can get the zinc shoulder and screw top, such as are used on kerosene oil cans. Those of one inch in diameter are the right size. Take the top and from the inside punch holes with the end of a file (small holes) being careful not to deform it. After punching eighteen or twenty holes evenly, turn and file the top smooth. The end or edge of the shoulder will fit most of the cans in the crease around the hole made for the cover. Fit and solder. Thus for one dime you will have as good a bee-feeder as any yet devised—one that you can feed on syrup with, thick or thin, or water your bees in the winter or spring.

Or you can have a neck fitted around the opening in the can, and by tying a piece of coarse muslin over the end of the neck, you will accomplish the same end.

To use, fill up full with honey, sugar syrup, or water, and place the neck in a hole over the cluster of bees. J. M. PRICE.

BUFFALO GROVE, IOWA.

The smell of balm (*Melissa officinalis*) is very agreeable to bees, and it is well to have this fragrant plant growing in the neighborhood of the apiary.

[For the American Bee Journal.]

Reply from Novice.

Dear BEE JOURNAL:—In reply to many inquiries, both through the JOURNAL and otherwise, in regard to removing the honey from the comb just as it is taken from the flowers, we would say that we think there can be no possible danger of the honey turning sour, as the very thinnest we had—which was from bass-wood, and in some cases, by way of experiment, removed on the same day it was gathered—is now so thick that a spoonful may be turned upside down without spilling.

It has seemed to be quite a general impression that our "machine honey" would be inferior on that account; but we are happy to state that such is not the case at all, and that the honey which seemed quite thin during the very hot weather when it was taken out, is now quite thick, although it was closely sealed on the same day; and some, which was purposely left open during the warmest weather, showed not the least sign of fermentation.

Our success in the bee business has made quite a sensation about here, especially as every one else has done so poorly, and the season is called almost a failure by old bee-keepers.

Now, all we ask is more seasons as good as that of 1868; and if we cannot do the same thing again, or better, (*two hundred and three pounds from one stock*), call us forever NOVICE.

MEDINA, OHIO.

[For the American Bee Journal.]

Singular Disease of Bees.

MR. EDITOR:—I had in my yard, at the close of the past season, about thirty-five stands of bees—six of them Italians, one hybrid, and the remainder black.

Early in September I noticed an unusual number of dead bees at the entrances of some of my hives. I soon found that in several of them the bees were all gone, although the hives were well supplied with honey; and now, with the exception of the Italians and the one hybrid, there are but six stands left, and some of these are dying. The bees seem to drop to the bottom of the hive in a stupefied condition, and lie there partly alive for some time. All had plenty of honey; and it is evident that there is no poisonous property in the honey, as the Italians, which were supplied with the frames from the diseased hives, are apparently strong and healthy. There are no indications whatever of foulbrood. That disease has never appeared in this vicinity. I will send you a few of the dead bees, if desired. Can you explain the disease, and give me a remedy? C. E. THORNE.

SELMA, OHIO, Nov. 9, 1868.

☞We have no knowledge of any disease similar to that above described, and cannot suggest any remedy. Transferring the bees and combs to hives well washed with a solution of chloride of lime and thoroughly dried, might perhaps be useful. Please send us a few of the bees.

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[From the German.]

Foulbrood.

ITS CAUSE, SOURCE, AND CURE.

[CONCLUSION.]

In a preceding paragraph of this article we have spoken of the composition of pollen, and shown its aptitude for and tendency to decomposition under the influence of moisture and heat. We have also sought to exhibit the effects which this decomposing substance is qualified to exert on other organic substances with which it comes in contact. We shall now endeavor to demonstrate the correctness of these views by the following convenient and conclusive experiment:

Put about $\frac{1}{4}$ of oz. of pollen in a small glass phial or flask, and into another similar flask pour pure water to the depth of an inch; then connect the two flasks by a bent glass tube passed through and fixed in the corks. Now suspend in the first named flask a small strip of paper which has been dipped in a saturated solution of sugar of lead, and secure it by the cork so as to prevent it from touching the water. If the changes which take place in the course of a few days be now carefully noted, the following will be observed: The mass in the first flask becomes slightly turbid, and numerous air-bubbles will be seen continually rising in it. This is carbon which, uniting with the oxygen liberated at the same time forms carbonic acid gas which passes through the glass tube into the second flask, where it is absorbed by the water. The strip of paper there suspended now assumes a brownish hue, as the lead it contains has a stronger affinity for sulphur, the latter is attracted from its just formed combination with the liberated hydrogen, and forms sulphate of lead. The nitrogen meantime arising from the pollen combines with the hydrogen, forming ammonia, which is retained temporarily by the water in which it is generated.

After this putrefactive decomposition of the pollen has been fully completed, a small quantity of matter remains in the flask as a residuum, which is called the ash. It contains the solid mineral substances taken up by plants through their roots. This decomposition may therefore be regarded as a species of combustion by humid process, because when pollen is burned in a platina cup, we obtain a residuum of ashes precisely similar in quantity and weight.

The principal elements contained in the pollen may now be readily determined. The presence of sulphur has already been detected by the formation of sulphate of lead on the strip of paper. The presence of nitrogen and hydrogen may be shown by our search for ammonia, which is a chemical combination of these two substances. Take a portion of water from the second flask and heat it in a porcelain cup, drop into it a small piece of caustic lime, and the pungent odor arising betrays the discharge of ammonia. To show the presence of carbon, combined to form carbonic acid, dissolve caustic lime in soft or rain water, and when the solution has become clear, pour some drops of it in a portion of the fluid contents of the second flask. The carbonic acid of this will immediately combine with the lime in the solution, forming carbonate of lime and rendering the water turbid. Thus are shown the chief elementary constituents of pollen.

Next, to acquaint ourselves with the effects which decomposing or putrefactive pollen has on honey, we resort to the following experiment: In a glass vessel place $\frac{1}{8}$ oz. of pollen crushed and comminuted between the fingers. Pour thereon $\frac{3}{4}$ oz. of pure water, and let the mixture stand several days in a warm place, till a perceptible commotion is generated, and numerous air-bubbles rise—the mass alternately swelling and subsiding. Now pour it into another glass vessel containing $\frac{1}{4}$ oz. of honey dissolved in $\frac{3}{4}$ oz. of water, and set this also in a warm place. In a short time the putrescence of the pollen will have communicated itself to the honey; alcohol and carbonic acid will be evolved, and the former converted into acetic acid by the free admission of oxygen. We may also remark in passing, that by heating in combination with nitric acid, chromic acid, sulphuric acid, manganese, &c., we can produce the volatile formic acid, which is the poison infused by the bee into the wound when stinging. But of this we shall treat more fully hereafter.

From the foregoing it is evident that putrescent pollen placed in contact with a solution of honey, can generate new substances possessing different and peculiar properties; and that consequently the utmost caution is requisite, when harvesting honey, not to mingle with it any decomposing substance. The result of the admixture of putrescent pollen would be decomposition (fermentation, as we term it) and the liberation of a glutinous substance contained in the pollen, which is the *ferment* whereby, in the body of the bee, wax is eleminated from saccharine, and from which the organism of the insect probably derives its formative tendency in appropriating nitrogenous nutriment. Thus, without pollen no ferment, without ferment no secretion of wax by the bees, and without this process no bees.

If not altogether as thus indicated, still in a manner substantially analogous, do those pollen particles operate which have, by means of the ferment they contain, been brought into state of putrescence, and being mixed with the chyme prepared for the brood, are introduced into the delicate bodies of the larvæ, and there brought in close contact with other readily decomposable substances. So long as the workers digested the chyme adminisistered, the action of destructive element lurking therein was in large measure suppressed and its destroying force mitigated. But when this preparatory action ceases, and the delicate creatures receive for food honey and fermenting pollen undigested, they partake of that "whose mortal taste" brings death unto them. The fermenting pollen particles, or rather the putrescent matter into which they have been converted, becomes immediately desseminated through their organism. This is speedily destroyed and decomposed, and the amazed and dismayed beekeeper finds the cells filled with a putrid and fetid mass, which when dried up is partially thrown out by the surviving workers. Behold here, foulbrood in its incipiency, and running on to fatal maturity. The deadly miasmatic gases (sulphureted hydrogen, ammonia) developed from the ever increasing number of dead and decomposing larvæ, affect nearly the entire mass of brood, and multitudes of mature bees perish, till the whole colony succumbs and the entire apiary and those of the vicinage are infected, unless by some timely remedy the progress of the malady is arrested.

We shall here indicate only briefly how foulbrood is disseminated. We call the substance which transmits disease from one body and place to another, miasm—which is usually understood to emanate from decaying and putrifying animal or vegetable matter. It is hence likewise generated in hives that are suffering from foulbrood. Miasms are probably composed of minute particles of matter in a putrescent state, which floating in the air diffuse the contagion in every direction in which they are borne. They may thus find access to hives through the entrance, or be carried in by the bees to whose bodies they adhere; and the disease may likewise be carried from a foulbroody hive to a healthy one, if the bees of the latter pilfer the former of its sweets. Analogous observations have been made of the diffusion of malarious diseases from marshy districts, whereby the morbid matter of typhoid and other epidemics has been spread over large areas; and which is attributed to the inhalation of the sporules of a species of fungus found in such districts. The fatal disease, too, to which silkworms are subject—known as muscardine—springs from a species of fungus developed in the bodies of the worms and fostered and spread by the contaminated atmosphere of the cocoonery.

It is hence apparent that foulbrood may be communicated from infected to healthy colonies by means of miasmatic corpuscles; and it is this circumstance precisely which give the disease its fearful character; and it is to the progress of chemical science that we are indebted for the means of controlling and counteracting this danger properly, and of finally subduing and eradicating the evil. Indeed, a more intimate acquaintance with nature, and with the powers and resources of science, serves more and more to elucidate many mysterious points, and aids in the solution of many a puzzling problem—enabling us to diminish or prevent some of the ills of life, or helping us greatly to enhance its enjoyments.

We shall in due course state the remedial means to be resorted to for the eradication of the evil, after giving a brief resume of what has already been said respecting its nature and source.

The name of the disease certainly indicates its character plainly enough—the brood becomes putrid. As the nitrogenous pollen readily undergoes decomposition under the influence of heat and moisture; and as this result can easily be produced by the vapor and humid exhalations condensed in the hive, just as we often see it on the windows of our houses; and as the putrescent matters are able to cause similar putrefaction in nitrogenous substances with which they are placed in communication or contact; and especially as the nursing bees mix the putrescent pollen with honey when preparing food for the larvæ, these at once become affected by the contagion and perish. Consequently foulbrood is only the result of the progressive putrescent decomposition of pollen particles within the larvæ, which destroys the bees in their incipient existence as brood, and by contagion or miasmatic diffusion spreads itself from hive to hive and from one apiary to another.

"A dreadfully devastating malady!" exclaimed an old beekeeper, on hearing foulbrood mentioned, "it brought me to the brink of ruin, by the destruction of more than forty of my colonies." We could in fact give this brood-pestilence no more appropriate name; and the magnitude of the evil was sufficient ground to seek for or devise means by the application of which we can avert the serious injury it is calculated to inflict. Relief was indeed sought for in empirical prescriptions and specific nostrums, but with no benefit whatever, as they were aimed at the consequences of the malady, and not against the malady itself. Finally, recourse was invariably had to the beekeepers' catholicon—the brimstone pit, as the certain and efficient cure-all. Undoubtedly, when the case seemed hopeless, the continued spread of the disease was enough to drive the hapless apiarian to despair, and excuse him for resorting to so desperate a remedy. We speak from personal observation, and possibly it may be of service to some desponding reader to learn how great has been the damage sometimes sustained from this cause.

About twenty-five years ago Mr. S. sold to Mr. J. his well-arranged apiary, consisting of fifty colonies, with a number of empty hives, a wax press, and other requisites, for the apparently exceedingly low price of one hundred dollars. For the purpose of saving honey the bees had been kept in a dark chamber during the winter, with the hives immersed in sand, and ventilation supplied by means of tubes inserted in the entrances. On their removal in the spring most of the combs were found to be mouldy and soiled by fæcal discharges; and the population was greatly reduced, evidently in consequence of this "economical" mode of "wintering." The bees appeared to be utterly despondent, probably from an inkling of the fate that awaited them, if their confinement were much further prolonged—not even the proffered food seeming to revive them. About the first of May, the weather being fine and pasturage plentiful, we examined them thoroughly at the new owner's request, and found, as we had previously surmised, that more than two-thirds of the colonies were foulbroody. The bees were comparatively few in number and languid in deportment, and speedy destruction was evidently impending. At the suggestion of an old bee-father, a few drops of the oil of cinnamon had been mixed with their food, without producing any perceptible benefit. Time wore on, the disease increased in extent and virulence, and by the middle of July, the poor man had not a single colony remaining of the fifty he had bought, besides losing ten more which he had previously owned, and he abandoned the business. The apiary of one of his neighbors also became infected; and before the ensuing spring he lost twenty-five colonies—his entire stock. We did not learn whether he made any renewed attempt at beekeeping, after sustaining so heavy a loss.

Dampness, partly derived from the sand in which they were imbedded, and partly caused by defective ventilation, thoroughly pervaded the hives, causing mouldiness of the combs, and inducing fermentation and decomposition of the pollen. The bees had been prevented from issuing to discharge their fæces; the combs were soiled, and an intolerable stench issued from the hives when opened. All the circumstances concurred to generate foulbrood, and hasten the lamentable issue already described. The moral of the sad story is, that bees, hives, and honey should only be bought from intelligent, competent, and trustworthy beekeepers; and that no new-fangled mode of wintering should be tried on a large scale, till after it has been thoroughly and repeatedly tested in a small way. "Prove all things," is a good maxim; but the test should be made within prudent and safe limits. Bees are certainly not moles, to feel comfortable when buried in sand. They require a domicile in which they are adequately sheltered from the inclemency of the weather and extremes of heat or cold. Proper ventilation should convey away exhalations, which, if in excess, may become noxious; and on mild sunny days at the close of winter, the bees should be allowed to fly to rid themselves of fæces accumulated by long confinement. But whither are we wandering—led away by the remembrance of the melancholy mishaps of our beekeeping friends? Let us resume our proper task, to explain how foulbrood may be infallibly cured.

We conceive that, in the foregoing, we have satisfactorily shown where the source of foulbrood is to be looked for. If we have traced the source and cause of the disease to the putrefactive decomposition of pollen, it naturally follows that we should search for and remove such pollen from foulbroody hives—carefully burning it, to prevent further damage. As such operations must be performed in a thorough manner, it will at once be conceded that convenient and effectual removal can only be affected where movable comb hives are employed; and we therefore cannot refrain from recommending them for general adoption.

To remove and cure foulbrood proceed as follows:

Early in the morning of a fine, clear, warm day carry the foulbroody hive to a moderately warm room, well lighted with close windows. Remove comb after comb, brushing off the bees, and cut out all the cells containing pollen or brood. Fill the vacant spaces thus caused, by inserting pieces of worker combs from healthy stocks, using such, if possible, as are supplied with eggs, and fastening them in the usual manner. The pieces of comb cut out should immediately be burned or buried, or at least made inaccessible to bees. If the hive have a movable bottom board, anoint its lower edges with twenty or thirty drops of pyroligneous acid. Then set it on three equidistant triangular strips of board, so as to elevate it slightly from the ground, and burn within it a square inch of linen dipped in melted brimstone—repeating this fumigating, at intervals, two or three times. Then carry the hive back to its stand, open the windows of the room, to allow the bees collected there to pass out and return to their home. The pollen having been altogether removed from the hive, a shallow box or plate containing oat meal, should be set out for the bees near its entrance. We recommend oat meal for this purpose, as it abounds in nitrogenous elements, and is hence well adapted to supply the wants of the bees. As an after cure and stimulant furnish them with honey diluted with water, and slightly warmed. The bees will thus more speedily recuperate; the queen being fed will be encouraged to commence laying earlier than she otherwise would do; and the population roused to recommence their wonted labors.

When hives have fixed combs, it is of course necessary to operate in a somewhat different manner. The readiest mode is, to stupify the bees, transfer them to an empty hive, cut out the pollen and food, and then proceed as above directed.

It is generally known that the sulphurous acid developed by burning brimstone (composed of one atom of sulphur and two atoms of oxgen—SO_2) renders innocuous the contagious or infectious matter generated in confined spaces; and hence the intelligent reader will understand why we recommend repeated fumigations with brimstone.

The reason why we advise anointing the lower edges of the hive with pyroligneous acid is because the creosote it contains possesses the peculiar property of arresting as well as of preventing putrefactive fermentation. But as the acid has the strong and penetrating odor of creosote, the quantity applied should be so small as not to injure or annoy the bees, by superinducing prolonged excitement.

Foulbrood most commonly manifests itself in the spring, and that is the time when the curative operation can be most conveniently employed. Nevertheless, should the disease occur in the summer, or later in autumn, the same curative process should still be employed, as the colony will thereby be certainly saved, and the pestilential malady be infallibly arrested and destroyed.

We part from the reader with the assurance that it affords us heartfelt gratification to have been able to devise, from observation and science, a process by which a disease known to be disastrous and hitherto deemed incurable, may certainly be eradicated at small cost of time and labor.

Observation of nature and her forces, as well as of the substances generated by them, their composition and decomposition, enables us to consider these in their diversified aspects; while science illumines the obscurity in which many of these substances and tissues are involved, the inner structure thus laid bare and exposed to view enables the inquirer to scan them with sincere gratification, in their life and workings within their innermost recesses.

BORNUM. A. LAMBRECHT.

[For the American Bee Journal.]

The Past Season.

The past season has been a very poor season here for bees. Mine were partially ruined at first when I took them out in March. The weather was then warm, which started them to brooding. April was very cold, with frosts near to zero, which killed a great many. The summer was very dry and hot, and the flowers did not last long. The basswood flowers did not last over a week. As a consequence, a great many hives all over the country are light, and I do not think one half of them will winter.

I like the BEE JOURNAL very much.

JAMES MCLAY.

MADISON, WIS., Nov. 9, 1868.

There is some foundation to suspect that the *heroic love* in bees, either for their queen or for their posterity, is only at bottom a self-interestedness. It is of great moment to them to be, even in life-time, a mighty people. The cold weather would destroy them if their great numbers did not sufficiently warm the hive; and their numbers depend on the fruitfulness of the mother. —*Wildman.*

[Communicated for the American Bee Journal].

Ligurian for, and Anonymi from, the Cape of Good Hope.

Rather more than two years ago, a gentleman about to leave England for Cape Town applied to me to supply him with a stock of pure Ligurian bees, packed in such a manner as should enable him to convey them by mail steamer to his new African home with a fair chance of their surviving the voyage. After having in 1862 succeeded in the far more difficult task of transporting Italian bees to the antipodes, I had, of course, every confidence in my ability to pack them for the shorter journey to the Cape of Good Hope, and had, therefore, little fear as to the result, when, on the 10th of September, 1866, the Royal Mail Steamer, belonging to the Union Steamship Company, took her departure from Plymouth for Africa with decidedly more emigrants on board than usual, seeing that in addition to her ordinary complement of passengers, she conveyed some thousands of the genus Apis, probably the first of their species ever exported to that continent, which already possesses more than one indigenous variety of the honey bee.

Although, as I have said, feeling but little anxiety as to the result, I have from time to time given a thought to the fate of those involuntary little voyagers, and have often wondered whether, after being the first to succeed in introducing the Ligurian variety of honey bee into England, and afterwards in exporting it to Australia, I should also be successful in transmitting it to Africa. These speculations, however, remained in abeyance until February in this year, when a letter reached me from the Cape, by which I learned that the Italian stock had reached that colony in safety, but vastly diminished in numbers, nearly five thousand having died. However, after sundry difficulties, they had ultimately been established, and the object which my correspondent had in writing was to obtain from me two more Ligurian stocks, he having unfortunately lost his only pure-bred Italian queen through an accident, at a time when there were no drones in the hive.

He also informed me that he had found at Cape Town two native varieties of the honey bee—"one small black, and the other, except in size, the exact counterpart of the Ligurian," and most kindly offered, if I would like to have a stock, to try his hand at packing one, and to send it by steamer to Plymouth. Turning this description over in my mind, I came to the conclusion that the variety which, except in size, was the exact counterpart of the Ligurian, could be no other than my old friend, or considering the terms on which we eventually parted, I might rather say enemy, the ferocious Egyptian bee, Apis fasciata, which so nearly simulates the Italian variety that the Rev. H. B. Tristram, author of "The Land of Israel," who found it amazingly abundant in Palestine, was misled into declaring that Apis ligustica was the common Holy Land insect. This conjecture was confirmed in a subsequent letter from my South African correspondent, wherein he stated that his experience of the "diminutive of the Ligurian" was similar to my own in that they were "very savage." It is certainly not a little singular that identically the same variety of honey-bee should be found in the extreme south as exists in the north of Africa and adjoining parts of the Asiatic continent; but as, although separated by so vast a distance, it was but too apparent that there was no amelioration in the pugnacity of their disposition, I respectfully declined to avail myself of the opportunity thus offered of renewing my acquaintance with the "pretty yaller gals," electing rather to transfer my attentions and pay court to the very interesting but anonymous little African "niggers," which my friend had somewhat vaguely described us "small black" bees.

Pending the receipt of farther intelligence, I made an effort to penetrate the incognito of my intended *protégées* by submitting the question to my friend Mr. F. Smith, the distinguished hymenopterist of the British Museum, who, however, could only surmise that "the small black bee possibly is the A. Adansonii of Latreille, which I suppose to be synonymous with A. nigritarum of St. Fayeau—A. unicolor of Latreille, and which M. Gerstäcker considers a variety of A. mellifica." I am of course unable to say how far this hypothesis may be correct, but supposing the small black bee of the Cape to be merely a variety of Apis mellifica, it is difficult to imagine how the native species or varieties can exist together in the same locality and yet keep themselves distinct. We know with what facility A. mellifica, A. ligustica, and A. fasciata will cross and interbreed with one another, and that this is at least equally the case on the continent of Africa is proved by one of my correspondent's letters, wherein, referring to the breeding of Ligurians in connection with Mr. Köhler's process, he says "it is the one thing required here, where bees of at least two or three kinds are common." These speculations can, however, only be set at rest by the arrival in England of the anonymi themselves, which I now hope may be deferred until next spring, although I have been expecting them during the past two months. My last letter from the Cape, dated the 18th of July, says, "Our native bees do not much like the notion of taking a voyage, at least so it seems, as two or three I have been preparing for you have deserted their boxes entirely, leaving brood in all stages, and betaken themselves to their native mountain wilds. I have four or five however, now well established, and hope either by next mail, or perhaps a month hence to be able to pack one or two off in such condition as to reach home alive. So don't be surprised at hearing some Africanders knocking at your door."

Although no "Africanders" have as yet knocked at my door, it will not now be very long before their own country is again the scene of an Italian invasion, for the Royal Mail steamship "Saxon," which took her departure from the port of Plymouth early in the morning of the 10th of October, was freighted with two strong bodies of apian Garibaldini in the shape of a couple of Ligurian stocks, which by the kind offices of a local friend were carefully stowed on board in capital condition, and which, by the time this article appears, will have landed on that coast "where Afric's sunny fountains roll down their golden sand."

T. W. Woodbury,
("A Devonshire Beekeeper.")
Mount Radford, Exeter, Eng., Nov. 3, 1868.

[For the American Bee Journal.]

Shape and Size of Hives.

Mr. Editor:—I shall have to enter into the controversy in regard to the shape and size of hives—shallow ones in particular—not so much in their defence as to give my opinion as to their alleged defects, the reasons thereof, and their remedies.

1st. Their uncertainty for wintering, without burying.

2d. Their liability to be infested by the moth worm.

3d. The charge of some that the bees do not build straight combs.

4th. The trouble of getting out a comb from a full hive.

First. This depends a good deal on the avarice of beekeepers, who wish to get a large surplus of honey, or profit, from their bees without any corresponding outlay on them. No farmer expects to have fat cattle without feeding plenty of hay and grain; and no beekeeper should expect profit from his bees without providing good warm hives, not simply a nail keg or a soap box; but such a one as is described by Mr. Langstroth in his work, "*The Hive and Honey Bee.*" I refer to the double-story hive, in figures 19, 20, 21, 22, and 23, on pages 48, 68, 86, and 96.

But, instead of glass hives, have the inside boxes made of lumber, and, with the two following alterations, and you will have a hive that possesses all desirable good qualities. The first is to have a bottom, either loose or stationary, to the base of the lower inside hive, and under that bottom nail strips half an inch thick and one inch broad, so that when placed inside of the outer case of hives, there will be a dead air space between it and the bottom of the outer case. Thus with the two bottoms of outer case and the bottom of inner hive, you have three bottom boards, and two dead air spaces between them. Having done this, you will have to make an alteration at the entrance to correspond. Cut the entrance hole 1½ inches higher; then put a piece of 1½ inch plank, the width of the entrance, on the bottom of the outer case in front for the bees to alight on, beveling the plank to the front.

The second alteration is: Instead of nailing the top boards of outside case cover to the sides as per directions, make a frame of strips one inch wide and two inches deep, just large enough to slip over the top of the sides, and nail the top board to the frame, forming a cover after the fashion of that of a pasteboard band-box, and which can be removed so as to pack straw or chaff between the hive and the outer case in winter—which cannot be done if the top is made according to the directions in the

the book. Thus you will have a hive that will winter any swarm of bees on its summer stand.

Second. Their liability to be infested with the moth worm. From all the observations that I have been able to make, either with my own hives or those of my neighbors, this was owing either to defects in construction, or the material shrunk after the hives were made—allowing the frames to touch either top or bottom or both. In making new hives I would not have the frames go nearer the bottom than one inch, nor within five-eighths of an inch of the top. To cure old hives infested with worms, nail strips at top and bottom to make the inside of the hive correspond with the above directions.

You will find worms in every hive if the bees have not free access all around the frames, particularly at top and bottom; and you very seldom find any if they have—though not more so than you will find in any other hive of any other make, pattern, kind, or patent, under the same circumstances.

Third. The charge of some that bees will not build straight combs. Last season my bees filled nearly ninety frames with combs, every one of which was straight. I melted some wax, and waxed the under side of the tops of the frames and the inner sides of the side pieces. Some of the hives were tipped, and some were not.

Fourth. The trouble of getting frames out of a full hive. Put in only nine frames; then, instead of the tenth, put in a partition board made so as to hang like a frame, but to fit close to the top, bottom, and sides. To take out a frame, cut the connections, if any, between the frame and the partition board; take out the partition board, and you can then easily move the frames so as to take out the only frame you desire to remove.

The movable division board also allows you to make the inside of the hive to suit a large swarm of bees or a small one.

Besides double hives form warm and comfortable quarters in comparison with the wretched makeshifts provided for their bees by the generality of beekeepers.

Let any one provide such a hive as is described above, and test it by selecting two swarms, the queens of the same age, and as near alike as can be in regard to prolificness and the working qualities of the workers also equal. Let one of these be placed in the above described hive in the beginning of March; and if both swarms are small in numbers, the more marked will be the difference between them at the end of the month.

The idea that single hives promote breeding earlier in the season may be all right in theory, but it is not so in practice and reality; for a swarm that can cover five frames of brood in a single hive can cover ten in a double one, and it will only take seventy-two hours to prove it. Just take a swarm that you know has a prolific queen, and which can cover only five frames of brood in the spring or the fall; place it in a double hive and alternate a frame of brood with an empty one, and in three days every frame will be full of brood—especially if they can have access to plenty of honey, or if one of my bee-feeders containing two pounds of water with four ounces of sugar dissolved in it, s placed over a hole in the top, so that the bees can have access to it. The bee-feeder is described in the July and September numbers of the BEE JOURNAL.

The double hive, moreover, more nearly approaches the natural home of the bee in the hollow of decayed trees, the walls of which are usually pretty thick and still further protected by the lining of decayed wood around the sides and top, absorbing the breath and moisture from the bees. The double hive, with holes in the top of inner hive, and with the space between the inner hive and the outside case filled with straw or other suitable material, accomplishes the same thing, only better.

A double hive ought always to be set so that the sun may shine on it all or nearly all day. Then the warmth will be pretty much equal, day and night, in the breeding apartment, encouraging the early and abundant production of brood. Whereas, in a single hive, the bees are alternately roasted by day and chilled during the night—driving them every night to a compact cluster to keep warm, and thereby retarding the production of brood.

The size of hives can only be determined by each beekeeper according to the honey pasturage of his section of country, and whether he collects his honey in surplus boxes, or uses the honey-emptying machine; and if the latter, whether he empties the combs once a week, or once in two weeks, or once a month, or only at the end of the season. Each of these circumstances will require a different size of hive; or by changing the frames, substituting empty ones for those that have been filled, the same result will be accomplished.

The shape, whatever advantage the shallow form possesses when surplus honey boxes are used—is of double importance now, since the introduction of the honey-emptying machine.

I cannot close without asking whether spiders are not the friends of the bee-keeper? If they are detrimental to bees, do they not, when taking possession of the space between the inner hive and the outer case, do the bees and the bee-keeper a compensating benefit by the destruction of the millers, worms, and other noxious insects? At least I have come to such conclusion from my observations this summer, and do not now trouble them in my hive, as I think the occasional appropriation of a few bees is more than counterbalanced by the good they do by destroying the millers that dodge the bee sentinels at the outer entrance of a double hive on chilly nights. The space between the inner hive and outer case forms a convenient trap for the moth, very few of which, under any circumstances, find their way into the breeding apartment.

The dead air space, between the hive and the outer case, retaining the heat acquired from the sun during the day, preserves its warmth throughout the night, and the bees are thereby enabled to keep a better guard over the entrance to the inner or breeding apartment. With the use of the shallow frames it is more economical to use the two-story hive, both for space and cost, and to have the hive compact with the store frames above, where the bees are better able to protect them. The heat of the breeding apartment below ascending also evaporates the water from the newly-gathered honey.

Let bee-keepers, who have suffered from loss of bees in single hives in winter, have a case made and try one double hive this coming winter. It will almost pay for itself in the saving of honey through the fall and spring. Report the result of the experiment in the Bee Journal, and let those who are troubled with the moth miller, try the above-mentioned method of cure, and report likewise.

I think the foregoing answers all the objections yet urged against Mr. Langstroth's hive. I discarded the single hive for its non-wintering and worm-cherishing qualities. I used the single standard hive. Neither it nor any other single hive is fit, I think, to put a swarm into, nine months in the year, in our cold and windy climate. But the Double Hive, made so that the frames will not go nearer than one inch of the bottom, nor within five-eighths or three-fourths of an inch of the top, with plenty of room between the ends of the frames and the hive, and with the other alterations I have suggested, will winter bees well on their summer stands in this climate if any will; and they will be entirely free from millers. In trying to make the hive which I invented overcome the above objections, I found out what would remove them in the Langstroth hive, and have correspondingly altered those I have on hand. The above is a full description of the alteration, and shows how it works.

John M. Price.

Buffalo Grove, Iowa.

[For the American Bee Journal.]

Size and Shape of Hives.

On this subject there exists a great diversity of opinion among bee-keepers, but in view of all that I have yet read, heard, or seen, I have come to the conclusion that the cubic form is on the whole best adapted to the bees. To approximate most closely to this form, in combination with the most recent improvements, was therefore my steady endeavor in the construction of my hive—striving, however, to avoid running from one extreme to another, and preferring to aim at an attainable medium. This desired cubic form can, I conceive, be readily approached by the Langstroth hive, and I therefore made my hives fifteen inches square and twelve inches high; and in these hives my bees have always worked to great advantage. But, in my opinion, Italian bees need smaller hives than black bees, wherefore I have latterly made mine only twelve inches broad, calculated for eight frames. The combs in these hives are just as conveniently handled as those in hives only ten inches high; and I think that in high latitudes bees will winter better in such hives. Mr. Grimm, however, uses exclusively hives only ten inches high, and I cannot yet state positively whether my bees have been more productive than his. I propose to try some ten inch hives next year, to ascertain the difference in my own apiary. There has thus far been no want of space for surplus honey boxes on my hives, for my bees have never yet been able to fill a single set arranged for twenty-eight pounds; though I expect to realize better results when I shall be able to provide myself with a sufficiency of empty combs to furnish a set of frames six inches high over the entire top. A colony of black bees which did not swarm yielded sixty pounds of honey in a second story, furnished with frames containing empty combs. An Italian colony produced a strong swarm, and yielded thirty pounds of honey in a super six inches high, filled with empty combs. Italian bees, however, are prone to fill up their hives with honey, thus unduly contracting the brooding space. The honey-emptying machine will enable us to regulate this matter advantageously.

Nevertheless, I conceive that in more southerly countries the ten inch high hive, "*the broad shallow things*," could be employed to most advantage; though it seems to me that in this region my twelve inch high hives are usually more populous than those of Mr. Grimm.

The fine fall pasturage which we have had here this year has placed bees in general in better condition for wintering than was the case in several previous years.

W. Wolff.

Jefferson, Wis.

[For the American Bee Journal.]

Ligurian Bees and Size of Hives.

Mr. Editor:—I see in the November number of the Bee Journal, vol. IV, a correspondence from Mr. William Carr, of near Manchester, England, setting forth some of the points of superiority of the Ligurian over the common English or black bees. He instances a swarm sent away by him to Exeter in 1866 that gave off three swarms, the first of which sent one and the second two from a queen of the current year. So this one stock that year increased to seven. Now, to corroborate in part the credit of the Ligurian bee, I will say that in 1867 I set apart two hives of Ligurian bees to allow them to swarm naturally, (as I practice artificial swarming generally.) No. 1 swarmed June 3d, and gave off four swarms. Its first gave off *three;* its second *two* from a queen of the current year. No. 2 swarmed June 6th, and gave off *five* swarms. Its first and second swarms gave *one* each, one from a queen of the current year. Making in all fifteen swarms—one mingled with other bees and was not identified, thus increasing the two stocks to sixteen, all of which wintered. From hive No. 2 I took thirty-five pounds of surplus honey in the fall, and a considerable quantity from No. 1, of which no account was kept.

I am like some other Brother Jonathans, and do not like to be excelled by our cousins over the water. The above result was obtained from the use of a shallow hive, ten inches high, fourteen wide, and eighteen inches long inside; both sides opening with double and treble wall, with intermediate air-chambers, securing uniform temperature through the extremes of weather. And, lo! it is a *patent hive*, patented by A. H. Hart, of Stockbridge, Wisconsin, in 1867, and known as the Excelsior Hive. If any of our bee-keeping brothers or sisters wishes to know more about the description and working of this hive, send postage stamp to the patentee and obtain his pamphlet and circular.

The above-mentioned extensive breeding leads me to conclude that the objections of friend Dadant against the Langstroth or shallow hive cannot be well founded, unless he can show that the square hives have excelled in some particulars. Forty years' experience has not taught me to believe that. As the brother says, on page 91 of the November number, that the habits of the queen are such that *she always commences in the centre* of the comb, and continues her laying *in regular circles*; if she comes in contact with the bottom or top of the frames she is thrown out of employ, and that this losing so much time constitutes his principal objection to the shallow hive. It seems to me from the view the brother has of the queen's habits, that a cylindar hive lying horizontally and filled with circular frames would come nearer his idea of a good breeding hive than any other.

I think there are quite a number of conditions requisite in a hive of bees to have brooding go on rapidly, which I shall not now enumerate. Practical bee-men understand them. One very essential quality I consider is a hive that will keep as near as possible a uniform temperature during the breeding season.

It hardly seems necessary for bee-men to differ about the exact height of a hive, as we have good results from both high and shallow. I am acquainted with a bee-keeper living within twenty miles of me, who has secured better results with the old box hive last season than any other in the circle of my acquaintance. He has taken about nine hundred pounds of surplus honey from about eighty swarms; while others with a hundred and more swarms, in improved hives, have not obtained half that amount. If I should not explain our doubting Thomases would say, "the old hive after all is as good as any." I was surprised to hear of his success this dry season, and went to visit him. I found that he had been benefitted by a very large amount of buckwheat sown around him. How his bees are off for winter stores I am not able to tell, but a very large percentage of swarms in this county this fall will be *minus* next spring. A. H. Hart.

Stockbridge, Wis.

Spiders seem hardly to deserve being ranked among the enemies of bees, because their webs are mostly too weak to entangle a bee.

Millepedes or wood lice are most destructive enemies of bees. They enter the hive during the cold of the winter and spring, eat the honey and destroy the combs.—*Wildmar.*

Bees and Blossoms.

Paragraphs like the following show that fruit-growers are beginning to be aware of the folly of denouncing the honey-bee as an enemy against which the stern resolves of annual town meetings are to be enlisted. Is it not about time for the good people of Wenham to reconsider their late decision, and not persist in the endeavor to hold the world to a retrograde movement?:

Bees.—A writer in the *American Journal of Horticulture* advocates the keeping of bees as a means of making fruit trees productive since they are great fertilizers of plants, carrying pollen, which in many instances without their aid would never become distributed. He says: "A relative of mine has for upwards of twenty years lived near the city and has all the time kept a great many bees. Since he has kept them the orchards in the vicinity have borne from two to three times the quantity of fruit that they did before; and some of the neighbors say that should he dispose of his swarms they would be obliged to keep bees themselves to obtain a paying yield of fruit." He thinks that those people who are about to banish bees from their neighborhoods, in the belief that they do injury to plants and trees, had better study up the subject before they take a step which sooner or later they must regret.

[For the American Bee Journal.]

E. Gallup on Wintering Bees.

Mr. Editor:—As I have a great many inquiries in regard to wintering bees, I propose to give my answer through the Bee Journal, and in that answer may criticise a trifle, but with no intention to stir up such a mess as I did by the shallow hives. By the way, I suppose that I ought to thank Mr. C. S. Payne for his article in the October number, and Mr. Chas. Dadant for his article in the November number. So here goes—"Thank you, gentlemen!"

To begin: Mr. Quinby recommends a barn cellar, and he gives a description of his in his book. Well, but we do not all have such cellars. Never mind, the principle is what we are after. Mr. Robert Jones, of Cedarville, Ills., in the September number, describes a very cheap house to winter bees in. Mr. H. Rosenstiel, of Lena, Ills., in the October number, gives us a discription of another cheap house for the purpose. Mr. P. Lattner, of Lattner's, Dubuque county, Iowa, furnishes another. I think ten or twelve inches of sawdust would be rather better than six for our Northern climate. The bees would not feel the effects of the warm sun so soon, at least in the spring; and I am not sure that it would not be better further South. I think it would. Mr. H. M. Thomas, of Brooklin, Canada, on page 224, vol. 3, gives us another cheap plan. His wire gauze is an actual injury, and his corncobs are unnecessary where the cellar is properly ventilated, and the requisite ventilation is cheaper than the cobs. Mr. B. S. Hoxie, of Cooksville, Wisconsin, in No. 11, vol. 3, describes another house somewhat more costly, but nevertheless a good one for the purpose. A honey board with the proper ventilation is just as good as his straw mat; but as he uses the Kidder hive, he has the mats and of course uses them. Mr. J. C. Wedge, of Fon-du-lac city, Wisconsin, a practical and well posted apiarian, uses a house 14 feet by 20, with double board walls and a foot space between each filled with strawdust, with perfect satisfaction. Mr. Chas. Dadant, of Hamilton, Ills., gives us his method of burying bees, and, with his method of ventilating the trench, there is no doubt but it will work well. His method of ventilating is the true method of ventilating a wet cellar, or a cellar or cave dug into the side of a hill and covered with dirt. If you put one tube or pipe in the top it is no ventilation at all; or if you put two in, both of the same length, it amounts to just the same. But put one in and let it just come up through the covering of the roof and extend down to within an inch or two of the bottom of the cave or cellar; then put in another, letting it go down just through the covering, and extend five or six feet above the covering or roof, like a chimney, and you have the very best of ventilation without a strong current of air. The fresh air goes down through the lower tube, and the foul or heated air goes out through the upper one, slowly and surely, no matter from what point of the compass the wind blows.

I understand that Bidwell Bros., of St. Paul, Minnesota, practice burying their bees as soon as they are done gathering honey. Their method of burying I do not know. A common house cellar is an excellent place, but the most of them are kept too warm. If all those places mentioned above can be kept at an even temperature, just above the freezing point, with each swarm ventilated just right to suit the size of the swarm, they will answer well. A large swarm must be ventilated sufficient to keep them perfectly quiet. See vol. 3, page 192, for my method of ventilating. Then, in handling stocks in the fall and again in the spring, you cannot, without actual weighing, discover that the bees have consumed any honey whatever; but we cannot say that of any method of wintering on their summer stands. So the conclusion that we have come to is this, that the saving of honey, and the absolute certainty of wintering, pays all the trouble and expense incurred.

I am aware that some say that a cellar or cave dug into a bank, burying, &c., is bad policy, Of this class is a correspondent at Red Wing, Minnesota. Mr. T. B. Miner, in his *American Bee-keepers' Manual*, published in 1854, condemns the cellar for wintering bees. By the way, this man said, on page 175 of said book, "I think the reader will, on wading through these pages, when he comes to 'finis,' exclaim, 'enough, enough! I want no more.'" Well, if he is still alive, and stopped where he left off in that book, he knows precious little about bee-keeping. About thirty-five years ago I failed in wintering in the cellar, but the fault was not in the cellar, it was in not knowing how to do it. The conclusion is that if anybody fails, although the cellar may be quite damp, it is from want of the requisite knowledge.

Mr. J. H. Thomas, of Brooklin, Canada, in his *Canadian Bee-keepers' Guide*, on page 46, gives a description of his bee-house for wintering in. He says that a house five feet wide, ten feet long, and six feet high, is large enough to hold thirty of his hives, and allow a passage between, &c. His plan is to have double walls filled in with tan, sawdust, or fine straw. By the way, in my list of bee-books I galloped over his without any mention. The price is twenty-five cents. It is worth the money any time to any new beginner.

A strong large swarm, with abundance of honey and properly ventilated, will winter well on its summer stand; but it is almost impossible to give written instructions to new beginners that will winter every swarm, without as much trouble in fixing up as it will cost to fix some of the special repositories above-mentioned. Our winters are so variable that the same method that will work well in one winter would not answer the next on the summer stand. With an especial repository we have the winter under our control, and wintering reduced to an absolute certainty with proper ventilation. We must remember that a large number of swarms create a large amount of animal heat, and a small number create heat in proportion. So in ventilating we must take this into consideration and govern ourselves accordingly.

About that wire gauze. If you fasten in your bees with fine gauze and one bee takes a notion that he wants to go out, he commences butting his head against the wire, and very soon communicates his agitation to others of the swarm, and they lose some of their number every time. Now, instead of the gauze, ventilate each hive just right, and you will not lose a dozen bees per swarm in the whole winter. If you are troubled with or afraid of mice or rats, use coarse wire that a bee can pass through easily, and still keep out the mice. I winter in the cellar, and yet ventilate each swarm so that I can go all around with a light and not a bee stirs or attempts to come out. If a large swarm is not peaceable, give more ventilation. If from a small swarm some of the bees come out and discharge every time you go into the cellar with a light, the inference is that there is too much ventilation. E. GALLUP.

OSAGE, IOWA.

[For the American Bee Journal.]

Color of Bees.

MR. EDITOR:—My experience with the Italian bees leads me to the belief that the color of the black bees is transmitted to the Italian race by them as nurses. I am so confident of the fact that I am willing to sacrifice my reputation as a bee-keeper that it is so,

LOCKPORT, N. Y. J. L. CULVER.

Many people have so strong a dread of bees that no assurance of safety can prevail on them to act familiarly with these insects. Indeed there seems to be a hidden quality in some men which renders them disagreeable to the bees.—*Wildmar.*

[For the American Bee Journal.]

Sending Queens by Mail.

Mr. Editor :—The question of the best way to send queens to distant places has for a few years attracted much attention. We can box a common bee hive with a space of an inch or an inch and a half between the hive and the box, having covered the bottom and openings, and the top holes or other ventilators of the hive, or those we make on purpose for free ventilation, with wire cloth, and send it in cool weather all over the world—certainly from Italy and Egypt to America. Then the hive is, say fifteen inches square—a large hive—with ample ventilation through its wire cloth, in a box eighteen or twenty inches square, full of round holes, *also covered with wire cloth*, and experience is ample that little difficulty is had in removals of many thousands of miles.

But in sending queens there come these requisites: 1st. *The queen* above all things safe; 2d. Workers enough to take care of her and keep her warm. Under these requirements such bee men as Langstroth began with quite a large box, which they soon reduced to one whose inside diameter were about $2\frac{3}{4}$ of an inch wide, about 5 inches deep, and 6 inches long. This again became reduced to $1\frac{1}{2}$ inches wide, 3 inches deep, and 4 inches long. In each size, the approximations to which I have named, two movable comb-frames with capped honey, were made fast, or one, as the case might be, and a suitable quantity of bees put on the comb, or combs, with a queen.

At last I received by express a box with one movable comb three inches long and one inch wide, a queen and forty workers, all the cells filled with honey except half a dozen, and the cells sealed over, and only *carpet tacks* to hold the comb in place. I wrote back that the queen was probably chilled on the cold honey, and complained of the insecurity of the comb-frame fastening. Yet the queen came safely fourteen hundred miles, and with such an excess of honey that I had a taste of almost Rocky Mountain honey.

Thus you see I was prepared for the next step, which was—can a queen be sent safely by mail? Experience had shown that all these express company packages were too large, that the queen often laid the blank cells on the way full of eggs. Here all the workers had accepted their situation in the rattling cars, and had done the best they could to repair damages, and nurse their queen and themselves up to a fair trim again, at the earliest moment.

At this point several mail boxes were proposed, and only deserve attention. One is a box made of thin lumber, so as to have an internal diameter of about $1\frac{1}{2}$ inch, and is square. Ventilation is given by saw cuts in the sides and ends about an inch long and a sixteenth of an inch wide. This, as I understand it, was to be sent only a few miles. So the bees were fed all they would eat, and sent by mail.

Among others came a very peculiar bee-box, made by H. Alley, Esq., of Wenham, Essex county, Mass. This is such a neat affair that I figure it for the Bee Journal. The first thing is a piece of pine wood about two inches long and $\frac{3}{4}$ of an inch wide and broad. In this cut out a trough-like excavation as that shown in section in fig. 1, in which the space by the inside lines is the trough-like excavation cut in it.

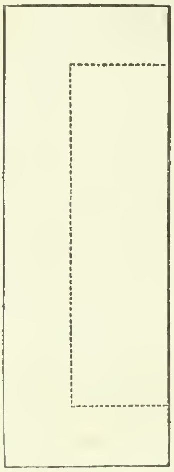

Fig. 1.

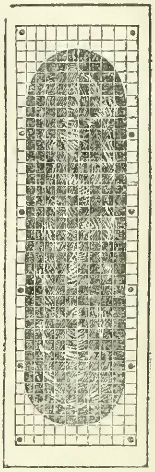

Fig. 2.

Fig. 2 shows its use, and is a view at right angles to fig. 1. By this figure it will be seen that the trough in fig. 1 is filled with a piece of sponge saturated with honey, and a piece of wire cloth is nailed over the sponge to keep it in place. This sponge feeds the bees while in the mail-bag. To complete the box three pieces of wood are made a quarter of an inch thick and about two inches long. There are two of these nailed to the piece made as in the figures, and the other on the end of the other two thin pieces—thus making part of a box in front of the sponge. A piece of wire cloth makes the top and bottom of the box. Thus, in the boxed space in front of the sponge, with top and bottom of wire cloth, is a place for a queen and a hundred or two of workers; and the sponge has feed enough for fifteen or twenty days.

Such a box I received last summer from Mr. Alley, with an Italian queen and about fifty workers, safely; and giving her to a powerful artificial swarm she has done well.

Now let me say that I have no doubt that this queen would have gone safely to the Rocky Mountains or to Texas by mail. That is, the package was good for any distance reached in ten days by mail, in any time from June 10th to October 10th.

The box was inclosed loosely in paper with my name on it, and came from Wenham, Mass., near Boston, to me, 450 miles or more, for two cents postage, under the law for the diffusion of seeds and other agricultural products. The Italian stock of Mr. Alley being so pure I was greatly pleased, Mr. Editor, and now tell you and your readers the result.

My bees have done well this season. I am yet skeptical as to the general success of the Italian bee. I hope more from the northern China bee and the bee of "All the Russias," or the Russian bee, enduring the excessive cold of that Empire as it does. But that is too large a question to discuss now.

S. J. PARKER, M. D.

ITHACA, N. Y., Nov. 14, 1868.

[For the American Bee Journal.]

Various Items.

Will Mr. Gallup please tell us how many frames of comb his bees made, with the size of frames, as I am also just commencing in bee-keeping, this being my third season? He says he had thirteen stocks, and increased to thirty-five. My object was also an increase of stocks, and I would like to compare results.

I commenced with ten stocks, one being queenless in April, and failing to raise a queen all summer until September. I had at one time fifty swarms, besides losing ten or more that left for the woods. All had fertile queens. I will here remark that every swarm raised its own queen, with three or four exceptions, and that forty of the young queens, more or less, were from five to seven weeks old before I found eggs or other evidence that a fertile queen had been raised. Also, that my bees, early in the spring as well as during the honey harvest, and later during the drought, started and raised only one queen at a time, with the following exceptions, viz: One stock started *thirteen;* two started *five;* two started *three*, and five started *two*. My old stocks also—those from which I had taken four or five frames of brood weekly to make new swarms with, and to furnish brood to such as failed to raise queens at first trial, (and they were not a few,) and likewise to supply all young swarms till their own queens began to lay—would have swarmed naturally if I had allowed them to do so.

I made new swarms as long as I had combs to furnish them with. Then I kept up the young swarms as long as there was honey in any of their hives. It was a hard struggle for either young or old stocks during August and September to keep house. They seemed to depend for their daily supply on an acre of buckwheat, sown about the first of June. It looked a good deal as if I had overdone the thing. I started to make ten from one as I did the year before. Acting on the adage "nothing venture, nothing have," I would not give up as long as there was a chance of success to bring me out all right. On the 20th of July I planted an acre of borage, but August and September were so cold that it failed to bloom, and with it failed my last hope.

The season being over, the following is the result: An increase from nine stocks to twenty-eight, with an abundance to winter, but no surplus to take away; and an increase of one hundred and sixty frames of comb, each one foot square—an increase of 16½ frames for each old stock. Besides this, I transferred sixty frames of comb which they had to mend, patch, and join to the frames. Last year I had an increase of forty-five frames from the old stocks wintered. I have not the least doubt that if I had let those hives that furnished the bees for my new swarms, furnish the brood, and let the others furnish the bees, the result would have been a great deal better. It will be seen from the above that, if the result is not up to expectation, it is still satisfactory.

I will also state the following observations of my hives: The double ones, facing south and in the sun all day, did the best. The double hives facing north, and the single hives facing south, and set so that the sun shone on them all day long, did next best. Double hives in the shade, facing north or south, amounted to little or nothing. And with regard to the time of flight of bees, from single hives or double, there was not much difference between those facing the same way. As regards the amount of bees that can be taken from a hive, I will only say that I generally moved a swarm once a week; but one swarm I moved twenty times in three months, and it gave bees enough to cover from four to six frames most of the time. In that case I would divide the young one in the course of eight or ten days.

Referring now to the article "*Criticism*," on page 188 of the April number of the BEE JOURNAL, "How to make all swarms equally prosperous," I would ask, can it be done? Can a man breed his cattle so that his cows will all give even quarts of milk or the same number of pounds of butter, or all weigh even pounds in the scales? I think not. He may, with twenty or more swarms greatly increase their average yield; but there will still be a marked difference between the individual hives, as there would be between the product of his cows. I think the nearest to such a desirable result that can be reached will be by judicious feeding and stimulating during the spring to get strong stocks early; and during August, or a dry period, to have strong stocks on hand for fall pasturage. This, and keeping the queens of about an age, and the removal of unprolific queens, is all that can be hoped for.

WINTERING BEES ON THEIR SUMMER STANDS.

Mr. J. T. Laugstroth says:—"Experience teaches that there will not be found wanting those who are ready to make indiscriminate attacks upon anything and everything which has our name connected with it—but those who will "prove all things, and hold fast to that which is good." In reference to his mode of wintering, would it not be better to take off the legs; cut off the portico, leaving it just two inches deep; nail a half inch strip all around the bottom "under;" then place the hive in the large outer case of his glass observing hive, altering the entrance to suit; knock off the cover, and nail a rim or frame so that the cover will fit the case like the cover of a pasteboard box—making it convenient to pack the carpet and rags around the front, back, and sides, and on the top? It being already protected by three inch bottoms with two dead-air spaces, it needs no further protection there. How much more than the way he recommends will this cost? But how much better and handier; and how much easier to pack and unpack; how much neater in appearance; and how in every way more desirable. I speak from experience, having one made and in use these three months for winter. He also says, "Now right the hive, put strips on the rabbets so as to raise the frames about half an inch higher from the bottom board." Now, having done this, why not nail them there, and keep the frames in that position evermore; reducing its chance of becoming infested with worms three-fourths; and while you are about it, just nail an inch strip all around the top of the hive, raising the honey board also—reducing the chances of its being infested with moth-worms three-fourths of the one fourth left, thus making it almost moth proof? Last spring I altered mine so, and have not had a worm in them since.

With regard to the packing with rags, I will say that in my experiments made with the hive I invented (see page 86, vol. 4, of the Bee Journal) the packing was first a layer of cotton batting, then a coffee-bag about three-fourths full of woolen rags, leaving the rags loose so that they would readily fill in the corners. I transferred the bees at night when the mercury was below zero. Next morning they had fastened the combs and patched them up all right on top, and in twenty-four hours there was brood in three combs. This was in February, and there was no brood in the others for five weeks after. I thought so well of the rags that I bought 500 to 600 pounds last summer for this winter's use. So you see I am all right on the rag question, and a little ahead of time.

A GOOD BEE-BREEDER.

Mr. Charles Dadant, on page 91 of the Bee Journal, and other correspondents through the back numbers, find fault with Mr. Langstroth's shallow hive, on account of the queens not being able to swing around a circle, thereby making it a poor bee-breeding hive. Gentlemen, please turn to page 87 of vol. 4. There you will find a hive described that is warm enough to breed your bees, and a frame as compact as possible, hanging in the best shape for breeding, and for storing honey above the brood, with room for plenty of honey in the spring in ordinary seasons. A circle of ten inches in diameter or thirty inches in circumference can be had, with practically no bottom to the comb below the cluster of bees for millers to lay their eggs in. Moreover, bees storing honey on their return home, do not have to pass over the brood to reach the top of the frame. They alight at the entrance (7), run up the inclined back (3) of the inner hive until they reach the strips (4), up which they run until they reach the level of the cells they are depositing honey in.

ALL WORKER COMB.

In running my bees from one to ten this last season, in over two hundred frames of comb made, not one was drone comb, neither was the comb made in hives without a queen, or where the bees were raising one, nor whether they had a fertile or an unfertile queen, drone-celled. They commenced none; and I have had no trouble from that source.

BEE-FEEDING.

In reply to Mr. Gallup's general rejoinder, I will only say that it matters little how he may feed his bees, since by his own confession he does feed. He may feed them spoon victuals or honey by the frame full from other hives. That is his method and his privilege. But, all jokes aside, are bee-keepers to rob their bees in the fall of most of their stores and combs, and then, if the spring is backward, or a season like the last occurs, ought he be either dissatisfied, or allege that bee-keeping does not pay, if he has to feed them a little to help them through? Ask the farmers if manure does not pay; ask the butter maker if feed does not pay; ask the cheese-maker if corn does not pay to feed cows? If your store hogs were not fed, how much pork would they make? How much wool would you get from your sheep without feed? And so on to the end of all things or animals appropriated by man to his own use. Even his machines he has to feed with "oil," or they will not run; and the most successful farmer, stock raiser and machinist, is he who *feeds* judiciously. And, in time, I think the most successful bee-keeper will be included among the most judicious of feeders.

THE HIVE FOR NATURAL CLUSTERS

of bees in winter is the one described on page 86 of vol. 4 of the Bee Journal. The frame, as hung, is eighteen inches high and eighteen inches wide, thus allowing large or small swarms to cluster entirely according to their instincts or nature. In this respect it is equal to any, if not superior to all, for wintering bees on their summer stands.

THE HIVE FOR NEW BEGINNERS

is the one described on the same page of the said volume of the Bee Journal. It is a hive that can be recommended to bee-keepers generally as one which, from its form, must always be clean, having no bottom for pieces of wax or dirt to lodge on, which in most cases will be found to be the true cause of trouble with bees. There being no bottom, only inclined sides and top, if no more combs are left in the hive than the bees can cover, all will be well; and in the morning or at eve by simply removing No. 6 during the spring, summer, and fall, and No. 6 and No. 10 in the winter, the condition of the colony can be pretty correctly told at a glance.

J. M. Price.

Buffalo Grove, Iowa.

The queen bee begins to lay her eggs as soon as the severity of the winter's frost is past; and proceeds in proportion to the mildness of the season. The number of young bees that may by this means rise in the hive may endanger the lives of all by famine. On this account the owner should at this season carefully and frequently examine the state of his colonies, and supply with food such as are likely to be in want. He may thus save colonies that would otherwise be sure to perish.—*Wildmar.*

[For the American Bee Journal.]

Multiplication of Stocks.

In the BEE JOURNAL, vol. 3, No. 9, page 180, you will find the following questions:—To "what extent can one stock of bees be increased artificially, in six months, with care and feed sufficient? And what quantity of sugar will be required for the same? The figures are wanted to see that it will *pay*." See also the same question, vol. 2, page 165.

Now, gentlemen, I have been waiting with all the patience imaginable for some of the knowing ones to answer this question. But, as they do not, suppose you stand back and let Gallup try his hand. In the first place, we will see what stories are told about natural swarming. See vol. 2, No. 10, page 190, for an instance of an increase of thirty in one season, and another of twenty-two, besides several lost for want of hives to put them in. See also same volume, page 195, a notice by J. L. Davis of ten swarms from one in one season. Mr. Wellhuysen (see July number, 1868, for description of hives used) informed me, (and I have no reason to doubt it,) that he had increased one colony up to thirteen; and the following season he had increased those up to one hundred and twenty-five by artificial swarming; and, as I informed the readers of the JOURNAL, I learned some things from him. There are but few hives that are calculated for such great increase. The Wellhuysen hive was one. The form of hive which I use, and Mr. J. M. Price's hive, are admirably adapted to the purpose. In the American form, and the broad, shallow form of the Langstroth, and several others, it would be useless to attempt such an increase. The form I use, and the division board, &c., have already been explained.

We will say that we have one good swarm to start with in the spring, with the comb all right, and a prolific queen raised the season previous, with not too much honey, and not too much old pollen. We will in this climate commence stimulating about the first of March. We want a small quantity of drone comb in the centre of the hive. (Four inches square is sufficient). In three weeks we will have every particle of comb filled with brood, and the old honey all used up. Now, if you please, we will take out one comb filled with mature brood, about three quarts of bees, with the old queen, and start a new swarm. The evening before taking out these, we will give them all the sweet they can contain. Now, when we take them out they will stay where we put them, by doing as I told you in the article "How to make natural swarms artificially," in the July number of the BEE JOURNAL. Give the bees one empty frame and adjust the division board. The young bees hatching out of the full comb, give the queen a chance to deposit her eggs. Now feed the old and the new swarm. The new one must have all they can consume, for they have comb to build. The old swarm wants just as much as they can consume without storing. After the new swarm has filled the empty frame with comb, slacken your feeding until the queen has all or nearly all the cells filled with brood. Then insert another empty frame between the two full ones, and increase the feed again.

Now we have got to look after our queen cells, and we want about eight. Take out seven, and seven frames with bees are enough to occupy said frames. Insert these frames in seven hives, adjust your division boards in each, and make your division of bees. The evening before this division, give the bees a good strong feeding, and adjust the division board in the old swarm. (We use twelve frames in one hive.) Now, we have four frames left in the old hive, and may want two of these by and by to give to the old queen, to prevent the bees from building drone comb, or the old queen may not breed fast enough to suit us. In that case we will want another comb and queen cell to supersede her.

As soon as your young queens commence laying, you have to build their stocks up in the same manner you did the first one. With one full frame and bees enough to occupy that frame, there is no danger of the bees deserting, if the supply of honey is kept up regularly; and with Mrs. Tupper's process of fertilization there is no danger of losing the queen. In all cases we must have the comb well crowded with bees, whether there is one comb or ten; and all upward escape of animal heat must be prevented.

Now we have nine swarms of bees, and must keep them equalised and build them up as fast as possible. Recollect that one frame filled with comb, having a prolific queen and bees to occupy the frame, in the right kind of hive, is just as capable of protecting itself from moths and robbers as any full sized swarm. For, so far as it goes, it is a strong swarm to all intents and purposes. And four frames filled with bees, comb, and honey, will winter just as well as the best of swarms, in a cellar or proper repository, if properly ventilated. In this manner I have wintered spare queens, and if I did not need them for queenless stocks, I built them up to a full sized swarm in the following season. Now after all those nine swarms are built up, we will have that with the old queen in filled first, and we want that frame with the drone comb in, in the hive with the old queen, because if we want more swarms we must have more drones and queens.

We can now go through the same process we did at the start with the old queen, only it is later in the season, and we want more bees with her this time. Nor must we start over four new swarms at a time, as we have nine swarms to strengthen up and equalise. This we can work very safely; and if we are sure of a supply of honey in September, we can keep on making swarms until into that month. But to move perfectly safe, we must make only one or two at a time towards the last.

Now comes the question about the quantity of sugar. I have seen seasons that to make thirteen swarms from one would not require over three dollars' worth of sugar; but from one to two dollars per swarm is enough in almost any season—for should the honey crop be cut off, as it was this season, your increase must be stopped at once, unless you want to feed for winter. Remember that at any time when bees can gather sufficient they do not want feeding; and in some seasons or at some times they only want enough to make up the deficiency, which may be only a trifle. They should not be fed so much as to restrict the queen from laying; and when you want a comb built they must have abundance of food, either naturally or artificially, and the fertility of the queen must be kept up to her full capacity at all times.

The next question is, will it *pay?* With Italian swarms at from fifteen to twenty dollars each, *where is that everlasting Yankee?* He can certainly be taught to make them cheaper than to buy them. Now I can answer another question, and here it is: Had I better buy a stock of four or five hundred dollars' worth of bees to commence with? *No!* If you have not the knowledge and skill, buy only one or two swarms and make the rest; and by the time you have made them you will know how to take care of them. Your knowledge will increase as your bees increase.

The reader will probably ask—"Are you sure of getting eight or nine queen cells in the way you speak of?" Yes, pretty sure, if you have a prolific queen and the supply of food is kept up just right, either naturally or artificially. I have hardly ever failed of getting from eight to twenty-six in a strong swarm with all worker comb. To feed for comb-building you should use white crushed or coffee sugar; and it is my impression the food should be about the consistence of thinnish honey. To promote breeding it should be thinner. We often hear the remark, "My bees were apparently doing well; they were strong and numerous, and I was expecting them to swarm; but they killed their drones and did not swarm." This could have been prevented by judicious feeding at the right time. If increase is what we want, we can create a swarming mania any season, by keeping up the supply of food artificially when the natural supply fails. In fact a queen can be kept breeding even in mid-winter by stimulation and keeping the swarm in the right condition. As I said on a former occasion, in all cases keep the queen in advance of the bees if you expect to profit from them. I have had three cases in my experience where from some cause the queen did not commence breeding as early as she should have in the spring, and the bees filled every cell with honey, so that she had no room to breed. In those cases I removed some of their central combs and compelled the bees to build new. This gave a chance for the queen to lay, and they afterwards became good stocks.

There are a great many old and experienced bee-keepers who have said, and will say, that such an increase as Gallup speaks of is impossible. Hold on, gentlemen, be not too fast! Let Gallup ask a question: Do you suppose that Gallup, with an improved Langstroth moveable comb hive, is going to be beat by his old friend Wellhuysen with his cow manure immovable comb hive? Not if he can help it, and he thinks he can. I do not wish to be understood as recommending an attempt at any such increase by a mere new beginner. But what I have learned to do I can teach others to do. And every bee-keeper should thoroughly understand the theory; and then he can practice it or not as he pleases. Let me here remark that I studied long and closely (after practicing with the Wellhuysen hive) on the subject of getting up a movable come hive small at the top, similar to Mr. Bingham's or Mr. Price's; but after using the hive I now use it worked so near like what I wanted it to do, in respect to cheapness, simplicity, ease of handling, and for artificial swarming, &c., that I gave up making the one I had already devised in my head.

Now, friend Monroe, you will probably say that Gallup has not exactly told the number of increase, nor the exact amount of sugar required. Well, we will leave that for our friend Quinby to tell. And we have as strong suspicions as he has of us, that it will bother him to tell within a quarter of a swarm or one ounce of sugar. ELISHA GALLUP.

OSAGE, IOWA.

[For the American Bee Journal.]

The Honey-Emptying Machine.

The honey-emptying machine must, I think, gradually facilitate the production of honey, and may be regarded as a decided improvement if there are not two *ifs* in the way. *If* first, the honey will sell in market as well in the liquid form as in the comb; and secondly, *if* the so frequent depriving the bees of their stores, and brushing them from the comb, does not so enrage them as to render them too angry and contentious to endure. I find my Italians, in the height of the honey season, very belligerent and not disposed so allow a single frame to be taken from their stores without vigorous protest and defence. Now, how will they endure the frequent pilfering of their stores, and the brushing of them from the comb? Will not their disposition be increasingly exasperated? Will those who have had experience give us light on these points?

BOLTON, MASS.

P. R. RUSSELL.

Bees and Honey in Minnesota.

RICH VALLEY, (MINN.,) Nov. 23, 1868.

The past season was rather a poor one for bees in this State. Nevertheless, judging from my own experience, in a poor location (the surrounding country being prairie, almost entirely cultivated in grain) bees, when properly managed, paid a larger profit on the capital invested than any other farm stock.

The honey gathered was superior in quality to any that I ever saw before. Of six colonies that I transferred from box hives to frames in the spring, each gave one good swarm and from thirty to forty pounds of surplus honey; and this without the aid of any empty combs, or honey-emptying machine. Doubtless if I had such aids, they would have done still better.

I do not intend to be without the BEE JOURNAL as long as I can get it, and only wish it came oftener. L. M. LINDLEY.

[For the American Bee Journal.]

Facts.

In the November number of the JOURNAL it was editorially stated that the "Kidder Hive" had been declared an infringement on L. L. Langstroth's Patent, in a suit in the United States Court, for the Northern District of New York. In the December number, page 117, I am surprised to see that the editor finds he was under a wrong impression when he made that statement. It also appears that friend Gallup, to use his own term, was a "putty head" in thinking the editor was right, although he must have other sources of information, as he quotes names, dates, and locality in regard to the decision which the December number informs us was never rendered. Had this information reached me "in time," I "should have made the necessary correction" of the statements in the November number, as I think no cause is ever benefitted by any, even innocent mistatements of facts. But, I was under the same impression with Mr. Gallup, and, as the December JOURNAL upsets my previous notions on this subject, I am moved to ask the publication of the following:

U. S. CIRBUIT COURT,
NORTHERN DISTRICT NEW YORK. } *In Equity.*
ROSWELL C. OTIS *vs.* CHARLES AUSTIN.

This writ having been duly brought to a final hearing upon pleadings and proofs, it is found and hereby ordered, adjudged, and decreed by the court, that the re-issued "Letters patent" on which this suit is brought, for improvements in bee-hives, issued by the United States to Lorenzo L. Langstroth, dated the 26th day of May' 1863, is a good and valid patent, and that said Langstroth was the first and original inventor of the improvements secured by said re-issued patent; and that said complainant, Roswell C. Otis is the owner of said patent, and among other places in and for the county of Wyoming, in the State of New York; and that the defendant Charles Austin, has infringed upon said patent, and upon the rights of the Complainant under and by virtue of the same, in that said defendant has used movable comb frames of bee-hives, constructed and adjusted in such manner that when placed in a hive or case the sides and bottoms of the frames are kept at suitable distance from each other and from the case, and are separated from each other at their tops, substantially as specified in the first claim of the re-issued patent granted by the United States to Lorenzo L. Langstroth dated the 26th of May, 1863, and that said defendant has used movable comb frames constructed and adjusted in such manner that when they are inserted in the hive the distances between them may be regulated at will substantially the same as specified in the second claim of said patent.

It is further ordered, adjudged and decreed that the complainant do recover of said defendant the profits, gains and advantages which said defendant has received, or which have accrued to him from the use of bee-hives containing said improvements.

It is further ordered, adjudged and decreed that said complainant recover of said defendant his costs, charges and disbursements to this suit, to be taxed.

It is further ordered, adjudged and decreed that it be referred to one of the masters of this court to ascertain, and take and state and report to the court an account of the gains, advantages and profits which said defendant has received, or which have arisen or accrued to him from infringing such patent by the use of the improvements specified in the first and second claims of said patent.

It is further ordered, adjudged and decreed that the complainant, on such accounting, have the right to cause an examination of said defendant; and also the production of his books, vouchers and documents, and that he attend for such purposes before said master, from time to time, as said master shall direct.

It is further ordered, adjudged and decreed that a perpetual injunction be issued in this suit against the defendant, restraining from further infringement of said patent to, and in accordance with the prayer of the bill of complaint in suit. WM. D. SHIPMAN, Judge.

Dated UTICA, March 21st, 1866.
(A true copy.)

Witness my hand and seal of said Circuit Court at Utica, this 21st day of March, A. D., 1866. AUG. A. BOYCE, Clerk.

Now, it seems to me that this is a "decision" within the ordinary interpretation of that word, although the language is "ordered, adjudged and decreed." Being an interested party, however, I will leave it to Gallup, who, as far as I know, has no interest in either patent. It only remains to ascertain what kind of a hive Charles Austin used, which was decreed to be an infringement on the Langstroth Patent. To do this let us see what another interested party says, in a flaming circular, headed $500 reward. I quote from said circular:

"Mr. Otis commenced a suit, in the Northern District of New York, against Mr. Charles Austin, of Wyoming county, N. Y., *having my hive in use. This suit I am now defending.* * * * * * And, furthermore, no person buying *individual or territorial rights* is obliged to pay *one cent* for *any claim* or devise their [Langstroth and assigns. J. T. L.] Patent covers,—as I am prepared to show, if they will let this suit come to a trial; *this will show* which of the parties is best entitled to the use of a movable comb hive. * * * *

(*Signed*,) H. P. KIDDER,
June 20, 1865. BURLINGTON, VT.

The *italics* in the first two sentences quoted are mine; the rest are his own.

It seems to me that Gallup and myself were excusable; he in his statement, and I in my neglect to contradict the November JOURNAL's editorial statement. If not, please let the public have the benefit of the information now in possession of the editor.

J. T. LANGSTROTH.

OXFORD, BUTLER CO., OHIO, Dec. 3, 1858.

[For the American Bee Journal.]

Italian Bees and Red Clover.

Mr. Editor:—Having read, with great pleasure and profit, the Bee Journal, for the last two years, and also the first volume in 1861, I will give you a report of my bees for the benefit of your readers, and because I am very much interested in the success of apiarian science.

I sent to Mr. Quinby, or rather went to see him at St. Johnsville two years ago, and purchased one full-blood Italian stock and several nice queens to introduce to my native stock. I introduced them successfully in July and August—living then in the suburbs of the city of Syracuse, N. Y. In the month of September and October I had five or six stocks of Italians. I was particularly pleased with their disposition. They allowed me to take out the frames of brood and bees repeatedly in warm and even in hot weather without smoke, though I invariably use the fumigating pipe for all natives. I had some transferring to do in the robbing season, and proved to my satisfaction that they did not attempt to rob so much as the natives, and still they improved their time well in the field.

But my especial test came in 1867. I kept four swarms of Italians and sixteen swarms of natives in the country. I transferred all my bees into frame hives in May. In June I found my mild Italians of the preceding year were up and dressed for business, working for dear life in the fields. When I went to their hives for comb and brood for rearing young queens I found the fumigating pipe of great advantage. They would meet me half way unless I did business in a scientific way. I found the Italians always ready to resist robbers. It was really amusing to see them catch the honey-hunters and dress them out on the alighting board.

I took three sets of combs and brood from each of my Italian stocks for building up new stocks during the month of July and August. In August the buckwheat and seed crop of red clover were very plenty in this vicinity. I had read all the statements and arguments, *pro* and *con*, in the *Country Gentleman*, the *American Agriculturist*, and the American Bee Journal, alleging that the Italian bees would work on red clover, and that they would not. I took three or four cards of honey and brood comb from each of my Italian stocks, shaking and winging off the bees into their hives, building up new stock with the brood; and served several of my native stocks in the same way in August while the buckwheat and seed crop of red clover were in blossom. No white clover was then in bloom. On the 10th of September I found the Italians had refilled their hives with white honey and comb, and each a set of boxes with white honey. The natives had all stored red buckwheat honey—which is rather unsaleable in first class market. I called my neighbors' attention and observation to the facts—they being previously very sceptical of the ability of the Italians to get honey where the native could not; but finally acknowledged the great point of superiority.

My Italian stocks have yielded me a profit of from $75 to $100 each last summer, in increase and surplus honey. Last spring I was offered fifty dollars each for two hives of Italians, but did not accept it, as I was bound to give them a fair trial myself. I have increased my stock and Italianized my natives on Mr. Quinby's plan the past season, so that my bees are now worth $1,000. They are all in good condition in winter quarters, in a dry, dark cellar, with the covers off and the honey-boards removed from the hives and plenty of upward ventilation.

I sold a few Italian stocks last fall to neighbors at $25 each. I purchased twenty swarms of full-blood Italians from Mr. House, of Oneida, in January, to stock another yard. They are very nicely marked; bred from Mr. Quinby's stock. I like the natives very much; but appreciate the Italians for the white honey they yield, and their uniform business qualities.

H. Wellington.

Syracuse, N. Y.

[For the American Bee Journal.]

On page 107 of the present volume of your Journal, E. Gallup makes assertions to which I desire to call the attention of your readers, and challenge him to prove as *true.* He alleges that Flanders has been selling impure "one-striped queens" to bee-keepers in the West, as pure, &c. That I deny, and hereby demand the proof, as the above is an *infamous falsehood.* The queens sold by W. A. Flanders & Co., have been carefully bred and warranted to give perfect satisfaction, and, as far as we know, our patrons have been pleased with them. They have been sold to popular breeders as "queen mothers," and we have their letters which show the very high estimation they put upon our stock. We can give scores of such references, if necessary. Our business has increased to such an extent the past season, that we have had no occasion to resort to the common practice of advertising in the papers, in order to sell all the queens we have been able to grow for the market. At present our terms are as *high* as market rates. We would inform all interested parties that, in *body* and *business* "we still live," and enjoy a very comfortable degree of health; and that the present weight of one of the firm (Flanders) by Fairbank's standard scales, is just 257½ pounds avoirdupois. If we had belonged to the medical profession and put M. D. to our name, it is probable Mr. Gallup would have interpreted it Mule Driver. "Where ignorance is bliss, 'tis folly to be wise." We take the Bee Journal and can recommend it as "*good to take,*" having taken it from the beginning, and shall continue to do so as long as it has for its object the promotion of truth and light in bee-culture.

W. A. Flanders.

Shelby, Ohio, Dec. 9, 1868.

Chamber's Encyclopedia states that the *Apis unicolor*—the species of honey bee found native in Madagascar and the Isle of France—yield an esteemed honey of a *green* color.

Hives should not be placed where the water from the eves of houses, or from trees or hedges, may drop on them.—*Wildmar.*

THE AMERICAN BEE JOURNAL.

WASHINGTON, JANUARY, 1869.

☞ THE AMERICAN BEE JOURNAL is now published monthly, in the City of Washington, (D. C.,) at $2 per annum in advance. All communications should be addressed to the Editor, at that place.

A Re-Correction!

We refer our readers, and particularly those immediately interested, to an article in this number of the JOURNAL, under the caption of "Facts," respecting the decision of the Circuit Court for the Northern District of New York, in the case of OTIS *vs.* AUSTIN, in which it was "adjudged and decreed" that the Kidder hive is an infringement of the Langstroth patent. It thus appears that the "correction," made in our last issue, of an editorial article in the November number, was itself a mistake; and that our previous impression of the matter was not "erroneous." In justice to all parties we may state, that our information was derived from a gentlemen in no wise interested, *pro* or *con*, who acted at our instance and solely with a view to oblige us; but whose examination of the records, it seems, did not extend sufficiently far to reach the final action of the Court in the premises—though he supposed he had got to that point; and under the circumstances, almost any one might have been so misled.

In an address before the Silesian General Apiaran Association, at Breslau, Mr. Kunze cautions bee-keepers against emptying quite recently stored honey by means of the machine, but does not state why it should not be done. Other speakers said it could be done with advantage, while the editor of "*Honigbiene*" remarks that late observations communicated to him appear to show that such seemingly *unripe* honey "will not *keep* well." A worthy old lady told us, several years ago, that in her family of seven children "preserves and honey never keep well!" Perhaps the adverse observations communicated to the editor were based on similar experience. Certainly the results of the experiments mentioned by NOVICE in the BEE JOURNAL for December, 1868, show no necessity for delay in emptying the combs. No doubt this matter will be fully tested next season.

We have received Part IV of the "GUIDE TO THE STUDY OF INSECTS," which, like its precursors, is filled with interesting and instructive matter, richly illustrated. Part III contained accounts of the hymenoptera (bees, wasps, &c ,) and three full page illustrations and numerous wood-cuts. Part V will likewise contain two full page illustrations, with many wood-cuts in the text, and if it can be prepared in time, a steel-plate illustrating the transformations of moths, mostly not before figured. In the pages of this serial the structure and habits of the honey-bee, clothes-moth, wheat-midge, hessian-fly, weevil, grass-hopper, house-fly, dragon-fly, &c., &c., are figured and described in popular language, so that all who choose may acquire a full knowledge of our common insects, whether beneficial or injurious.

Another Honey Plant.

A short time ago Dr. Devron, of New Orleans, sent us some dried specimens of a "new black bee plant," which Prof. Porter, of La Fayette College, Pa., identified as *Lythrum alatum*, Pursh, "a native of the United States, growing west and south." It is a species of Loosestrife which we have nowhere seen enumerated among honey-yielding plants. Dr. Devron writes, "it is a native perennial plant, which I have allowed to grow in my garden for the last two years, though very common in our vacant lots and fields. It is a honey-plant—for bees cover it from morn to night, carrying from it no pollen. A strange peculiarity about it is, that it is visited by almost all the honey loving insects, even to the house-fly, but *never by an Italian bee or a hybrid of the same*, though growing in front of hives containing this variety of the bee."

It is well-known that the Italian bee visits many plants and flowers not frequented by the common bee; and it was supposed to be, in that respect, peculiarly privileged, as enjoying superior advantages in having a wider range of resources at command. Here, however, the case is bravely altered and this is the first instance that we know of where the Italians avoid a plant visited by common bees. Is it from mere indifference or from positive repugnance? And are there any or many more cases of such avoidance?

Maj. Von Hruschka, the inventor and introducer of the honey-emptying machine, announces important improvements in the use of that implement which he will shortly communicate to the public.

The *Louisville* (Ky.,) *Democrat*, of November 19, contains the following account of a recent extraordinary emigration or desertion of honey-bees—whether fact or fiction, we cannot say. If not a "moon hoax," we hope soon to receive from some correspondents residing near the scene, a more full account of the occurrence:

Extraordinary Exodus of Honey Bees—They Abandon their Winter Stores and Disappear.

One of the most remarkable occurrences that has ever come to our knowledge was related to us yesterday. Mr. James Broil, a farmer, who resides about seven miles from this city, on the river road, has for some time past been engaged extensively in raising honey bees, and with almost unprecedented success. He has lately rejoiced in as many as forty-five hives of the industrious little "cusses," and to use a homely phrase, they have been plying themselves like Turks, and making "slathers" of honey for the winter. A few mornings ago, however, Mr. Broil woke up to find his bees *non est.* They had "lit out" between two days, leaving no trace whatever of the point or region of country to which they had so unceremoniously migrated. There was not a solitary bee left to keep its lonely watch over the forty-five hives. As might be expected Farmer Broil was left in considerable of a dilemma, and immediately consulted all the authorities at his command in relation to the peculiar habits and freaks of the bee tribe. After wading through many volumes it occurred to him that some of his neighbors might be able to explain the whys and wherefores of this "bounty jumping" move on the part of his army of honey makers. He accordingly made a "bee-line" for the residence of his nearest neighbor, to consult him on the singular problem. To his utter surprise, he ascertained that his friend, who is also a "beeist," had met with the same loss in the same sudden manner, and was in the same perplexity as to the cause. They at once resolved on examining the hives, and it revealed to them the fact that each stand contained from sixty to seventy-five pounds of honey. This development led the two bee raisers to seek for further information, and in their rounds, for a circuit of twenty-five miles, they found that every hive had been deserted about the same time, and all of them were left full of honey. The farmers in that region are unable to account for this mysterious disappearance of their bees, and many theories have been advanced, but up to this time the problem remains unsolved. The opinion of the most of them is, that the mildness of the weather up to so late a season, caused this singular migration.

The description of Mr. J. L. Hubbard's Honey-Emptying Machine, intended for this number of the Journal, had to be postponed till next month, as the diagram to accompany and illustrate it, could not be got ready in time.

We conclude, in this number, Mr. Lambrecht's essay on the cause, source, and cure of foulbrood; and shall, in our next, present Dr. Preuss's recent article on that subject contained in the *Bienenzeitung*, a lucid abstract of which has already been given to our readers in the communication from the Baroness Von Berlepsch, in the Bee Journal for November. Though each of these inquirers assumes that he has traced the disease to its source, and their views consequently differ; we conceive that there is no irreconcilable difference between them, the observations of the one being in fact, in essentials, only the complement of the other.

To J. P. of C.—We have not seen Darwin's late work on "'*The Variations of Animals and Plants under Domestication*," and cannot say whether the author indulges in any "new vagaries," or not. We presume that whatever facts he adduces are correctly stated: but we should incline to exercise great caution in following him, whenever he gets astride of his favorite hobby and throws his lasso around the neck of an *inference.* The hunter and his quarry are then rather apt to come to the ground together. Please complete your '*Strictures*," and send them to us.

[For the American Bee Journal.]

That Bee Disease.

Since the date of my previous letter to the Journal, my bees have continued to die as before, the disease finally attacking the Italians also, so that now I have not a single healthy stock left. The disease is not by any means confined to my apiary, as nearly all my neighbors have lost all their stocks. It is generally considered here to be something similar to cholera. The abdomen is swollen, and emits an extremely offensive fluid when crushed.

The first warning I had of anything being wrong with my bees, was an unusual activity about some of the hives, as though they were robbing, but I found they were not. A neighbor observed the same in his apiary.

The fact of the disease appearing simultaneously in apiaries several miles apart, would indicate that it is epidemic rather than contagious.

We have used the honey on the table for several weeks, and find it perfectly good and wholesome.

Some have ascribed it to a want of pollen, but I find my combs well supplied with bee-bread.

C. E. Thorne.

Selma, Ohio, Dec. 7, 1868.

☞ Mr. Thorne sent us some of the bees that died of the disease referred to above, but there is nothing in their appearance that could lead us even to conjecture the cause of their death. It cannot be foulbrood, for that does not affect or prove fatal to mature bees.

[For the American Bee Journal.]

Sundry Suggestions.

Mr. Editor:—In a multitude of counsellors there is wisdom. I wish to make some suggestions through the columns of your most valuable Journal, in reference to hives; but if on examination you find this communication in any way objectionable, cast it among your waste paper.

My suggestions may perhaps be considered by some as based on new and novel ideas, but the present and the future will satisfy practical bee-keepers as to their correctness. In my experience, (which I think has been considerable,) with all the various patent hives, I find they each have their objectionable features. The bee-keeping public have not got what they need in a way of a hive. There are certain known principles in the business, which experience has fully demonstrated may not be departed from; and yet by the inexperienced the dividing line between principles and the highway to destruction is not perceived. There are some common sense practical ideas that should be well understood for perfect success. Among these is prominent the fact that a swarm of bees, without the means of appropriating the animal heat generated in the hive, are in a helpless condition, in that they cannot manufacture the wax into comb, nor cause the eggs to hatch, nor the brood to mature in a temperature of less than 70° F. (See Langstroth on the Honey Bee.)

The difficulty that I wish to speak of occurs in making artificial swarms; which are made:—

First. Because the bees will not swarm naturally when they should.

Secondly. Because it is not economy to take the rest of their swarming when their queen is not present (as they frequently do) and go to the timber.

As a matter of dollars and cents, then, we are driven to the necessity of making swarms artificially, which mode I think is much the best. When so doing, and in order to induce bees to stay, we generally transfer one or two combs to the new hive. But now comes the trouble in all the hives yet invented. Take first the Langstroth, which is as good as any in this particular. When the comb or combs containing young bees and honey is so transferred, together with mature bees in sufficient number to make the usual sized swarm, they are placed in and up to one side of the hive (which is the most economical to the bees for preserving their animal heat,) and the bees will cluster to the side of the comb in the open space. This leaves on open space opposite the side of the comb 12 by 18 inches and 9 inches high, except that which is filled by the bees clustering. The bees cluster in that form for the purpose of generating animal heat, to keep the young brood now in the comb (which is the full size of the frame) from being chilled. This is a very unnatural condition for bees to cluster in. The animal heat so generated escapes into the open vacuum to the side of the comb and against the large flat surface of the hive. Its effect is thus almost entirely lost to the bees, and hence artificial swarms are inclined to linger when just made.

This lingering of artificial swarms has been observed by many, and has caused some to my knowledge to abandon artificial swarming, because, as they say, natural swarms always flourish better than artificial ones do.

To recapitulate. Our position is this, that if you should have a thousand swarms of bees in different kinds of hives, they would perhaps without exception all go to the top of the hive to commence building their combs downward. This seems to be the most natural with them; yet they can build them vertically up or down. They seem to go to the top, not because of any knowledge of duty or economy, but driven there to obtain the benefit of the animal heat, which always tends upward to the top of the hive. And if the hive is made tight, it will accumulate there in sufficient quantity for the benefit of the bees. But still the bees cannot at times generate it in sufficient quantity and temperature to fill the hive (when the bees first begin) more than $\frac{1}{4}$ or $\frac{1}{8}$ full—beginning at the top of course and building downward. Now it naturally occurs that if the combs are suspended the full length of the hive, and from top to bottom, that the bees in clustering against the side of said combs are in an unnatural cluster, and are unable to bring out their full effective force, either in the building of comb or gathering of honey, and hence they linger. In the American hive it is still worse on account of the increased depth of the combs.

Further—the bee-keeping public need something enabling them to take the surplus honey from the main hive without damage to the hive and brood, and thereby get nearly double the amount of surplus honey. They also want a better and unlimited control of the combs for various manipulating purposes, rearing queens, &c.

We want a hive from which combs, brood, and honey can be taken in proper shape for the purpose of rearing queens in nuclei, and returned without loss of comb or bees when the season for rearing has passed. Small combs cut out and inserted in small frames) which is the custom) are generally eaten up by worms or otherwise destroyed; and many of the bees used in nuclei for rearing queens are generally lost. Every pound of comb so destroyed costs the owner from sixteen to twenty pounds of honey.

In the present advancing tendency of bee-culture, most bee-keepers (at least the practical part) understand that they must keep on hand a supply of reserve queens for emergencies, and that it is not economy to allow a full stock of bees to rear queens. The nucleus system is therefore a necessity.

Query. With honey-emptying machines, where the operator wishes to empty the honey from a piece of comb containing also brood in all stages, does not the rapid revolution at which the machine carries the comb produce as it were a breeze of air within the machine, and thereby chill or otherwise injure the unsealed brood, especially that portion which has only been recently hatched? If so, we want a hive to meet the emergency. The honey-emptying machine is one grand step in advance in the right direction; and together with the introduction of the Italian bee and the movable comb principle, has given the business a wonderful impulse. If the bee keeper will but understand his own interest he cannot afford to do without these three improvements. By the way, however, for fear some one should think that I am recommending to the public something which I have to sell, I will state that I have neither queens, hives, nor machines for sale. J. W. LEAY.

MONROE, IOWA, Oct. 9, 1868.

[For the American Bee Journal.]

Workers Reared in Drone Cells.

In an experiment of driving out two full stocks of bees that had not swarmed, and putting them in a hive of entirely drone combs, *they raised all workers*, except three or four drones that seemed to be raised through mistake, as they sometimes do in worker cells. What will the advocates of Mr. Wagner's theory say about the eggs being impregnated, by being laid in small cells, when bees can raise workers in drone cells, and drones in worker cells? The drone cells were not taken down to the base and built up in worker cells, as might be expected.

Here is a point for Mr. Wagner's theory. The cells were changed from the middle to the outer end, making them the size of worker cells, with extra wax, making them in funnel shape on the inside, with some irregular cells here and there.

The experiment was tried in a scarce time of forage. In a time of a large yield of honey, or on especial occasions, such as swarming or renewing of queens, they would raise too large a portion of drones for profit, if having the combs ready for doing so; while the case is different if the combs are all of the worker kind. The few drones they might raise in the small cells do not generally amount to much, and the profits are proportionally greater, having little or no drone comb. J. M. MARVIN.

ST. CHARLES, ILLS.

☞ No full and precise statement of what is known as the "Wagner theory" has ever been made. The brief reference to it in Mr. Langstroth's treatise on "*The Hive and the Honey Bee*," is a mere outline of its general features as then held by us, subject to such modification as further observation and reflection might suggest. We have not since felt called on to present our views more in detail, nor do we propose to do so now, contenting ourselves with the remark that we do not regard the determination of sex in the worker egg, by the queen, like Dr. Küchenmeister, as a process altogether mechanical, nor like Dzierzon as an act of pure volition. We conceive the matter to be susceptible of explanation, without reducing the insect to a mere machine, or endowing it with faculties and powers surpassing those conferred on any higher order of creatures. The case stated in the foregoing communication does not militate against our views, but rather corroborates them.

The notion, revived by Harbison, that "the eggs to produce drones or males are generated in or produced from the one side or branch of the ovaries, and those producing females from the other side," was advanced *and exploded* long before he was born, unless he is a much older man than we suppose him to be. It could not even pass current with the *Buncomites* of those days.

[For the American Bee Journal.]

Queens Mating with Two Drones.

Queens often mate with a plurality of drones. I have known this since the fall of 1863, at which time I raised my first Italian queen. I watched one raised in an observing hive at that time very closely, and found that she mated with four different drones, bringing in the signs of concourse very distinctly. I noticed that, after mating, the queen does not fly again the same day, but may do so again some other day.

Since the case mentioned, I have noticed the like of it with more than twenty queens. When we use the Köhler process, we should remember these facts. They can be proved.

I wish to state my opinion or theory based on the above observations. It may be stated thus:—A queen may mate with drones of different breeds, as Italians and blacks; and the spermatozoids will not influence each other, but the queen will. Consequently we may raise pure and impure queens from such a mother. The pure ones mating with pure drones of their own kind will produce pure stock, both drones and workers. If this theory is true, it will account for the various appearances in the progeny of hybridized queens. Prove all things and hold fast to that which is right.

DELHI, (MICH.) J. L. DAVIS.

[For the American Bee Journal.]

Queens Mating Twice.

I have observed this in the sense intended by J. E. Pond, Jr., on page 110 of the December number, to take place in a few instances. Queens seen returning, or soon after their return, with the plain marks of copulation were discovered, generally after three days had passed, to have again met the drone. In these cases it was indisputable that the queen had met different drones and on different days. I account for it by supposing that, as is the case with animals, copulation may sometimes take place without resulting in impregnation. These queens were carefully watched thereafter, but their progeny did not vary in color, as might be expected had they been impregnated twice by drones of different species. Of course, this proves nothing, as they probably had paired with pure Italian drones in both cases. It is my opinion, however, that, when impregnation is once effected, we have no reason to believe that any subsequent copulation takes place. I thus account for the occasional cases of obstruction owing to the retention of the male organ and consequent barrenness of the queen, on the ground that "accidents will happen."

OXFORD, OHIO. J. T. LANGSTROTH.

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Foulbrood,

A MICROSCOPICAL INVESTIGATION INTO ITS NATURE AND ORIGIN.

I have much pleasure in laying before the readers of the BEE JOURNAL the following translation of a very interesting paper which appeared in the last number of the *Bienenzeitung*, and shall be glad if Mr. Quinby and other observers who are interested in the subject will favor us with their opinions upon the theory which is therein promulgated. Its author, Dr. Preuss, of Dirschau, is a physician of great eminence and wide-spread reputation, "Sanitätsrath," or Sanitary Counsellor, being an honorary title conferred by the Prussian Government only upon distinguished members of the medical profession. Whatever we may think of the fungoid theory which he advances, it must be conceded that he is tolerably correct in his treatment of the disease, and that we have to thank him for a very able and laborious effort to dispel the mystery which has so long enshrouded its origin, as well as the mode in which, under certain circumstances, it becomes so rapidly developed and propagated.

T. W. WOODBURY,
("A Devonshire Bee-keeper.")
MOUNT RADFORD, Exeter, Eng., Oct. 21, 1868.

THE EXISTENCE OF VIRULENT FOULBROOD DEPENDENT UPON A MICROSCOPIC FUNGUS, CRYPTOCOCCUS ALVEARIS.—IT CAN BE PREVENTED AND CURED.

Although I have seen bee-keeping carried on from my earliest childhood, and have myself pursued it during seventeen years, in Dzierzon and straw hives, with German, Italian, and Egyptian bees, and have taken occasion to examine numerous apiaries in the valley of the Vistula from Dantzic to Plock, in Poland, it was not until 1866 that I anywhere met with foulbrood.

Bee-keeping in the Vistula valley is generally carried on in straw hives, and is very prosperous owing to the rich pasturage furnished first by the extensive fields of rape-seed, then by the white clover, and in the autumn by the wild mustard. In the neighborhood of Dirschau and Dantzic there are, indeed, numerous apiaries of Dzierzon hives, and at Gütland, one mile from Dirschau, my friend Wannow keeps bees entirely in hives of this description.

Two years ago, whilst he still possessed a magnificent apiary of seventy hives, mostly in bee-houses, he called my attention to the fact that foulbrood had made its appearance among them. We did not at that time lay any particular stress upon it, and this is an error against which we can scarcely warn bee-keepers sufficiently. When I visited him again shortly afterwards, I was astonished at finding this beautiful apiary dwindled to one-half its former number, and still continuing diseased. I immediately purposed to devote myself to the investigation of this horrible malady, especially to the microscopical examination of the foulbroody substance; and I here communicate the result.

The statement of Von Molitor-Mühlfeld, of Mannheim, that a saw-fly is the cause of this disease, we have not found confirmed in a single instance, the minute perforations which sometimes exist in the cell-covers being made by the bees. Never have we, either with magnifier or microscope, found in the cells the eggs or maggots of saw-flies; never have we found in the hive even the saw-flies themselves. Neither can we indorse the theory of Dr. Assmuss, that the disease is produced by the larva of *Phora incrassata*.

Foulbrood, as is well known, has a viscous, gelatinous, and yeast-like appearance, and an unpleasant odor. Foulbroody cells may be recognised by their sunken covers.

In order to be able to set about the microscopical investigation of this decease, it is necessary to possess a microscope which has a magnifying power of at least 200 to 400 diameters. Mine is an excellent instrument by Brunner, of Paris, and my observations have been made with a magnifying power of 600 diameters. It possesses also a micrometer which will measure to the ten-thousandth part of a millimetre, or the twenty-thousandth part of a line.

It is also essential that we operate very neatly and with as little contamination as possible. The investigation is best conducted when the blue sky sheds its light on the field of the instrument—not the direct rays of the sun or a reflected light from a building or such like. A retired room that is unshaken by passing vehicles, and a firmly fixed table are also required. The instrument itself should be levelled in a horizontal plane.

A great many observers as well as beginners commit the mistake of placing too great a body of matter on the glass slide, in which case nothing can be seen but a chaotic mass. It was against this error that my respected and highly honored preceptor, Ehrenberg, of Berlin, warned his scholars the most.

When the microscope is properly adjusted, we dip the end of a clean and very slight rod, either of glass or wood, into a foulbroody cell, and by this means deposite a particle of the matter about the size of a grain of sand (a portion even of the size of a millet grain would be too large) upon a very perfect glass slide scrupulously cleaned by means of wash-leather. We then dip another rod in freshly distilled water, or in fresh rain water caught in a clean porcelain vessel (if the water be not fresh it becomes impregnated with organic matter, whilst spring water would deposite crystals and thus vitiate the operation) and by means of this perfectly clean rod dipped in absolutely pure water, we deposite a drop of the size of a millet grain, and no more, on the particle of foulbrood of the size of a grain of sand, which by this means diffuses itself a little in the water. The whole being covered with a thin glass about the thickness of a poppy-leaf, we have a preparation by means of which long and careful studies can be made. If we place it under the microscope we see a thousand dust-like bodies which are known to the micologist as fungi, and which belong to the species *Cryptococcus* (Kützing). These are best seen at the edges of the mass where they are scattered singly; but if the observer has neglected the precautions before indicated he will not be able to detect the fungi singly, nor will he indeed see anything of which he can undertake the examination. If we find different sized bodies, the larger are fatty particles, the remains of the bee-chrysalis, and those which are smallest of all and dust-like are the fungi.

The foulbrood fungus, which I have named *Cryptococcus alvearis*, belongs to the smallest of fungoid forms. It is round and dust-shaped, and has a diameter of 1-500th millimetre, or 1-1095th line. Consequently 1095 can lie side by side within a Rhenish line, but within a square line 1095 x 1095—that is, 1,199,825, or in round numbers, 1,200,000. The cubic line, according to this would contain 1,440,000,000,000 fungi; and a cubic inch of foulbrood, which consists of 1728 lines, would contain 2,488,320,000,000,000. If we reckon further that a cubic inch of comb contains 50 cells the contents of each cell would be 49,766,400,000,000—in round numbers, fifty billions, or deducting one-fifth for wax, forty billions of fungi.

It is only this enormous capability of increase which renders foulbrood so dangerous, as is, indeed, the case with the cholera, typhus, and small-pox fungi, &c.

Foulbrood is no more a poison than is any strong rank-growing weed; it merely supplants that which otherwise would live and thrive. It is closely allied to the fermentive fungus, *Cryptococcus fermentum*, which by its rapid increase in fluids capable of fermentation, transmutes them, and, after it has consumed all the elements which are capable of serving for its reproduction, precipitates itself in the form of lees. Beer and wine lees are in like manner a conglomeration of microscopic fungi.

The actual nature of foulbrood being clearly defined, everything else follows of itself. The extraordinary facility with which it may be communicated must be indubitable; so long as it lies jelly-like and covered in the cells it is perhaps the least dangerous; but when it rests dry, and like a black crust on the edges of the cells, or falling down within the hive is scattered abroad like dust, then billions of sporules are sown broadcast. They adhere to the feet of the bees, enter the cells filled with young brood, become transferred to other hives, through resting on flowers, &c., and thus the disease may be spread in a thousandfold manner.

It is well known that it is not the larva, but the sealed chrysalis that first dies of foulbrood and is then consumed by it. The fungus, however, first attaches itself to the larva, but in trifling quantity, for some thousand sporules cannot injure it; so pass the six days of its larval life. It has within itself the germ of death, but yet it lives. When in the nymphoid state it is killed by the fungus multiplying prodigiously in geometrical progression, which also continues to increase after the death and at the expense of the chrysalis, which it ultimately changes entirely into itself.

I should define the distinction made by Dzierson, between non-contagious and virulent foulbrood as consisting in this—that non-contagious foulbrood means the death of the larva from other causes, and virulent foulbrood the death of the larva from foulbrood fungus.

With respect to the origin of foulbrood, independently of infection, we have seen above that the foulbrood and fermentive fungi are of the same species, and it is also known that fungi, especially the microscopic kinds, change and transform one into the other, according to the different substances upon which they alight.

It is in this way highly probable that the fermentive fungus *Cryptococcus fermentum*, may when it comes in contact with, or when as food it enters the body of the bee larva, change itself, under peculiar conditions of temperature and moisture, into *Cryptococcus alvearis*, or foulbrood fungus.

All practical bee-keepers complain of feeding with fermenting honey as the principal cause of foulbrood, and fermenting honey arises in the first instance if, when the honey is taken possession of, the sealed or open combs containing brood are not carefully separated from the honeycombs, in which case the honey becomes mingled with albumen, and is useless for feeding. We cannot, therefore, be too careful in using honey for bee-food.

Mr. Wannow, of Gütland, a very assiduous and intelligent apiarian, always asserted, long before I begun my microscopical investigations, his conviction that foulbrood had arisen with him through giving his bees meal as food, or that it had at any rate been greatly increased by it. Although no other similar observation has reached me, I yet esteem this experience of a thoroughly practical man as well worth notice. Meal is an exceedingly favorable soil for the propagation of this fermentive fungus, as is proved by the abundant fermentation which follows the addition of yeast to dough. It may, therefore, be advisable, at least in hives which are already deceased, to eschew the use of meal as food.

As the fermentive fungus is very much diffused throughout nature, and as countless multitudes of its sporules float in the atmosphere, so they without being greatly assisted in their increase by fermenting liquors, when they have the opportunity of establishing themselves on a soil which agrees with them, contrive to carry out their propensity for multiplication. A particularly favorable soil is found in dead and mouldering larvæ; and for this reason, if brood which has died from cold or other causes be permitted to remain in the hive, it may occasion virulent foulbrood without feeding with deleterious honey or such like.

The removal of a hive, by which too many bees are lost, and those remaining are unable to foster the brood, may promote foulbrood. The multiplication of stocks by artificial means, by which, when the proportion of the bees to the brood is too small, the latter may readily be chilled to death, is more favorable to the outbreak of foulbrood than natural swarming. I have on a former occasion advised for the prevention of chill, the warming of artificial swarms by means of corked bottles filled with hot water—a practice which I have found very beneficial. We are, therefore, very careful that dead brood, especially such as is sealed over, should be removed as soon as possible from the hive and buried deep under ground, since the fungus, which may, perhaps be already on it, readily grows luxuriantly in the open air. We should never throw out dead bees near an apiary, but bury them, as the dead bodies of bees are also soil in which fungi will thrive. As a corpse, if permitted to lie unburied, might infect a whole town and engender within it a fatal epidemic disease, so may a few putrefying maggots poison a whole apiary.

Should the disease have already broken out, it may be asked, What farther is to be done? In the first place, let us not take it easily, but view it with the same serious attention as is wont to be bestowed upon glanders among horses. That we must avoid all the before-mentioned food, either fermenting or capable of fermentation, among which meal should be reckoned, is, of course, self-evident. Medicaments for the extirpation of foulbrood there are none. It is, as with the diseases of men, important to know this, lest time should be wasted in useless quackery. But as there are no medicaments for the disease, the maxim of Hippocrates must needs be valuable :—*Quæ medicamenta non sanant, ferrum sanat; quæ ferrum non sanat, ignis sanat.* We also pass quickly to the iron—*i. e.*, we examine the hives diligently, and as soon as foulbrood appears in the apiary, cut out every comb in which are foulbroody cells. If this is of no avail, the court of third instance—the fire, comes in its turn. We do not spare our apiary, but remove each foulbroody comb, disdaining to take from it either honey or wax, with which we should reap billions of foulbrood fungi, but throw it into the fire, wherein the fungi are effectually disposed of, and hang the healthy combs in pure hives. We do not deem it necessary to burn the infected hives, but wash them inside and out with diluted sulphuric acid (one part acid to ten parts of water, by weight) and some time afterwards with boiling water, by which means the fungi are destroyed. If we prefer a self-acting process, we place the hives in an oven, and keep them there for some hours exposed to a temperature equal to that of boiling water; here the heat penetrates into all the crevices and pores, and effectually destroys the fungus. When, thirty-five years ago, I walked the hospital in Berlin as a young medical student, puerperal fever and hospital gangrene prevailed to fearful extent, and lying-in women and the wounded perished from ulceration, after enduring the most horrible sufferings. All remedies and precautions having proved futile, we emptied the different wards, keeping them for weeks with closed windows heated to a temperature of 40°, (123° Fahrenheit,) and when they were again tenanted by the sick it was found that the epidemic had vanished. Here, then, we may also presume that a fungus was destroyed by the heat.

The site of the apiary should be repeatedly moistened with diluted sulphuric acid, and the earth around it dug over. After all the hives are purified, we should, if possible, remove the apiary to a new position. The conveyance of the disease by the bees themselves is, perhaps, less dangerous if we only diligently examine their hives, and for this reason we only kill them when everything else fails. Their establishment in new, or at any rate clean hives, is best effected about the middle of June, because they are then able to build sufficient combs and store them with food for the winter. But *all foulbroody colonies should be transferred as nearly as possible at the same time*, lest the healthy stocks become contaminated by the diseased ones. For this reason also we examine all the combs weekly, and remove such as are infected, and in this way it is quite possible to conquer the disease.

As in medicine the most distinguished practitioners generally discovered the right mode of treatment before the actual nature of the disease was determined, so also Dzierson, Von Berlepsh, and others have already promulgated many of the above rules for the treatment of foulbrood, and have especially warned us against losing time in worthless quackeries, a warning which we cannot here repeat too forcibly. If, however, the instructions which we have given above be scrupulously and energetically followed out, no one need despair of curing the most virulent foulbrood.—Dr. Preuss, *Sanitatsrath.*

[For the American Bee Journal]

The Honey-Emptying Machine.

Having received several requests for a description of my machine, I would like to describe it once for all in the JOURNAL.

First, let me say it is a difficult thing for me to describe; but I will try to make it all plain, and if I fail to do so I shall be pleased to answer any inquiries about it, if the necessary postage is remitted.

Provide a tin can 20 inches in diameter by 25 inches deep.

Bill of stock for the rack holding the combs—dimensions given in inches :

1.	Bottom board.............	12¾ x	10¾	x ½
2.	Two cleats.....................	10¾ x	¾	x ¾
3.	Three pieces..................	17½ x	¾	x ¾
4.	Four pieces....................	14¼ x	¾	x ¾
5.	Two pieces......................	12¾ x	¾	x ¾
6.	Two pieces.....................	7½ x	¾	x ¾
7.	Four pieces....................	19¼ x	1⅜	x ¾
8.	One piece.......................	18 x	⅝	x ¾
9.	One piece.......................	8 x	⅝	x ¾
10.	One piece.......................	22 x	⅝	x ¾
11.	Two pieces.....................	7½ x	7¼	x ¾
12.	Shaft................................	36 x	15-16	x ½
13.	Two pieces wire screen.	19½ x	14¾	
14.	Two pieces wire screen.	8½ x	7¼	
15.	Six strips.........................	14¼ x	¾	x ⅜

Use screws to put it together, then if any part needs replacing or adjusting it can easily be done ; it also makes it much stronger, which is quite essential, as a heavy strain comes upon it when in operation.

Fasten the cleats (2) to the underside of the bottom board, one at each end; also the clamp (9) to the centre of the same side. This piece should have a hole through the centre, 15-16 inch in diameter, to correspond with a similar one through the centre of the board.

Next, fasten the four pieces (7) to the ends of the bottom board, one end flush with the bottom of the cleat (2) and one side flush with the end of the same cleat and the side of the board.

Now, fasten the two pieces (5) to the top of the outside of the post (7). They will project ¾ inch at each end.

Fasten the piece (8) diagonally across the tops of (5), and close to two of the posts (7). This piece should hole 15-16 inch through the centre.

The posts (7) should now be parallel, 7½ inches apart one way, and 12⅔ inches the other way ; and are ready to have the large screens (13) nailed firmly to their sides. To support these screens more firmly, fasten the strips (4) to the outside of the posts (7) at the top and bottom. Also, fasten the strips (3) lengthwise, to the outside of the posts (7).

The six pieces (15) are to be placed, equidistant, horizontally across the wire screens, three on each side, to keep them from pressing outward, and should be mortised to (3) before the latter are put on.

Tack the smaller screens to the inside lower ends of the posts (7), and fasten the strips (6) and (11) to the upper and lower edges of these screens between the posts (7).

Put in the shaft (12) so that one end will be six inches below the bottom board. A little pin or nail through the clamp (9), and also one through the brace (8), both ending through the shaft, will hold it in place.

The rack is now complete, with the exception of trimming off some of the corners, and fastening it into the can, so that it may be revolved.

To do this, I jointed two strips, 20 inches long and one inch square, together in the middle, and made a half inch hole half way through the centre of them. This just fits in the bottom of the can, and the lower end of the shaft is fitted to it.

Make an inch hole through the centre of (10), and cut some grooves half way through the same piece, 20 inches apart, so that it will slip on the shaft, and the sides of the can will fit in the grooves. Some little ends soldered to the can, coming up on each side of this piece will keep it in place.

The rack is now ready to revolve. To do this, fasten a strong cord, about six feet long, to the shaft just above (20) and wind it up. Pull on the cord until it is all unwound, and hold it so that it will wind up again by the acquired velocity of the rack, and the latter will revolve some thirty or forty times, according to the length of your cord. It is easily stopped by seizing the top of the shaft with one hand. Then it is ready to revolve in the opposite direction. In this way it may be revolved rapidly or slowly as desired.

Such a rack will accommodate any sized frame, up to 12¾ inches wide and 18 inches long.

If only Langstroth frames of the usual size are to be used, the rack may be made much smaller.

When I get a pan full of slicings and small bits of comb, I scrape it into the bottom of the rack, and a few turns takes out the honey as clean as it can be strained in any other way. The wire screen should be ten wires to the inch.

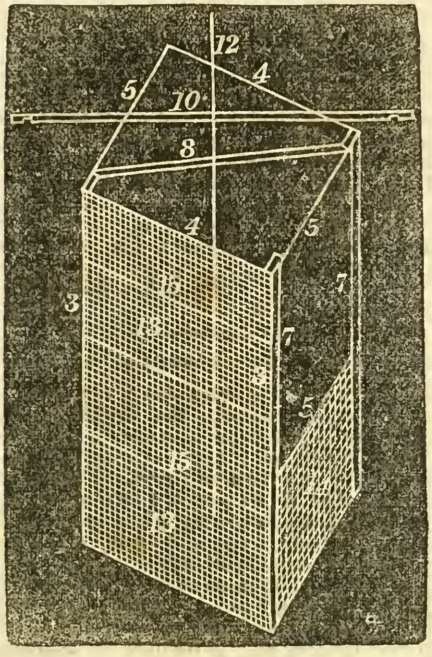
Such a can holds about fifty pounds below the rack. A little tube, three-fourths of an inch in diameter, near the bottom of the can, serves for drawing off the honey.

If the honey is allowed to stand a little while, after being strained, any particles of wax which have chanced to get in, will rise to the top ; so that most of the honey can be drawn off clear, directly into the glass cans, and save the trouble of straining.

The cost of the can, $5 ; screws, screen, and wood work, from $1 to $1,50. How long it would take an experienced hand to put one together I cannot say ; but it will take a " green 'un" some little time, if not longer.

Mine was patterned mainly after one I purchased of Mr. Langstroth, with some additions of my own, making it stronger and more durable.

I have not attempted using any gearing on top, as the cord works satisfactorily, and gearing would be constantly in the way.



The above diagram is intended to represent, in part, the rack for holding the frames; and if you think best to insert it, it will be likely to enable some one better to understand the arrangement.

J. L. **Hubbard.**

Walpole, N. H., Nov. 6, 1868.

[For the American Bee Journal.]

Prevention of Dysentery.

Here is a question that I have been asked repeatedly—"How do you manage your bees when they get the dysentery?"—or, "What do you do for your bees when they have the dysentery?"

Well, my friends, my bees do not have the dysentery; and, in fact, I have come to the conclusion that there is no such disease. Here, methinks, I hear friend Pucket say—"That is some more of Gallup's buncom!" And I hear others say—"My bees certainly had the dysentery." Well, mine, too, used to have it, or what is called so, some twenty-five or thirty years ago, but they know better now. But let me explain: It is a condition of the swarm, or of the hive, and not a disease.

I have found a swarm in the spring, in a hollow tree, with the entrance at the top of the cavity or hollow; and when they first flew out in the spring, they did not so much as speck the snow. On the other hand, a swarm at the bottom of the hollow, will discharge large quantities of fæces on their first flight. This is in their natural state.

When bees are kept in cellars or a special repository, a large or strong swarm, if not properly ventilated, will be too warm and consume large quantities of honey, more than can be evaporated by insensible perspiration. These will have the dyentery, and will, in all probability consume all their stores and starve before spring. The remedy in this case is to take off all of the honey-board, and if they are not then quiet, raise the hive at the bottom by degrees until they become quiet. What I mean by a very strong swarm, is such a swarm as Novice would have from a two-story hive on reducing it to one-story in the fall. It is best in such a case to take out one or two combs from the sides of the hive and move the remainder further apart, so as to give more room for the bees between the combs. On the other hand, when we have a small swarm that occupies just two or three ranges of combs in my hive, (a nucleus, if you please, in which we are wintering a spare queen,) we will say we have them in the right hand side of the hive, we move the hive to the right or the bottom board, so as to close the lower entrance. The division board must be adjusted to suit the number of combs; and the piece of honey-board over the bees can either be moved a trifle or raised; and your nucleus or small swarm will winter exactly as well as the large one. The small swarm will not consume any more honey in proportion to the number of bees, than a large one. But should you attempt to winter such a small swarm in a large hive, they would consume more honey in proportion to the number of bees, and in all probability have the dysentery.

The bees of a small swarm with too much ventilation, will, on your going into the cellar with a light, come out and discharge on the outside of the hive. Give less ventilation, and the remedy is applied at once. A late swarm that has thin watery honey will have the dysentery. To prevent this, give it in the fall some combs from an old swarm containing good honey; and give them the thin honey in the spring, when the bees can fly out. But enough on this point at present.

I wish to be understood on this subject of wintering, ventilation, &c., because it is of great importance to know that bees can be wintered without consuming much honey. Walk down into my cellar and see the bees, it will take but a few minutes. Step up and look at them by the light of the lamp. Do you see the striped fellows in this hive? "Yes, but Gallup, they are dead as a door nail." Not a bit of it. "Well, they don't stir." Let us breathe on them a trifle. "They are alive; that is a fact. Do they keep as quiet as that all winter?" Certainly. And that is not all; they scarcely consume any honey all winter. "Well, Gallup, I do not want to tell you that you lie, but I do not believe a word of it." "Well, sir, your disbelief does not alter the fact one particle. "Why, Gallup, here is your pork, potatoes, and other vegetables; your women must come down here two or three times a day with a light. Don't the bees come out?" Do they come out now? "They do not appear to, that's a fact. Why, Gallup, I always supposed that bees, when kept in a cellar, had to be fastened in with a straw mat, patent bee preserver, or something of that sort." "Well, you now see that mine are kept in with a little common sense, do you not? Yes, but I can hardly understand it." That is because you do not believe your own eyes.

Reader, scarcely a week passes all winter without some such conversation as the above on this subject. If I had only ten swarms of bees, and never calculated to keep any more than that number, and had no cellar, I would build a place on purpose to winter them in, and save honey enough every year to pay the expense.

E. GALLUP.

OSAGE, IOWA.

[For the American Bee Journal.]

To Capture Queens and Fertile Workers.

To capture and remove a queen, preparatory to Italianizing, in fifteen minutes, if in a movable comb hive, remove the honey boxes, put on the cap, and give them one whiff of smoke from dry cotton rags at the entrance. Then proceed to the next, if you intend to remove the queen from more than one hive, serving them all in the same manner. Repeat the smoke a second time, waiting not more than five minutes. Now take off the caps, setting each by its hive and returning the honey boxes again. You will now catch four out of five queens in fifteen minutes, as she is the first to go up out of the way of danger. It is not best to wait too long, or you will have more bees to look over.

If in a box hive, take it from its stand, setting a decoy hive in its stead, and invert it, placing an empty hive or box over, closing up any irregularities between the two, and giving the smoke in the bottom of the lower one as inverted.

To get rid of a *fertile worker*. While many have tried and failed, and some have destroyed the whole stock, I will give a method which occured to me after losing a number of good queens and queen cells. It is true that where a colony has been queenless for some time, the bees having no facilities for rearing a queen, will supply themselves with a fertile *worker*, or a substituted queen, which is difficult to detect, (not differing in appearance from a common worker,) unless she is caught laying. Her presence in the hive may be known by her laying two or three eggs in a cell, skipping about, and laying very irregularly and upon the sides of the cells. Such a stock I remove from its stand several rods, setting in its room an empty hive, looking as much like the one removed as possible. Now, going to some stock, take a frame of brood and honey, eggs and larvæ, shake off the bees, and place it in the empty hive. Then go to the removed one, and take out all the combs but one which contains the least honey; shake off all the bees, and be careful to leave every bee in the hive, to return at their leisure. Place the removed combs on each side of your brood comb, to keep warm till the bees return. Now, if the hive containing the fertile worker be left open, the whole thing will fall a prey to robber bees, and they will return much quicker to their home. The fertile worker, being a substituted queen and having characteristics like a queen, is readily detected and will be stung to death by the robbers, as she would be the last to leave the hive.

I have never failed in this way. Perhaps others may know of a better method. This certainly is a very good one; and while some have recommended to destroy the whole swarm, I manage to save them.

Having been somewhat tedious, I will not inflict my past ignorance on the readers of the JOURNAL, or what I did with my first bees in old *box hives* or *hollow gums*, as ignorance needs no delineation.

JAMES BULLARD.

EVANSVILLE, WIS.

[For the American Bee Journal.]

I see by the December number of the JOURNAL that D. V. Conklin claims that he has a patent on the hive of which I sent a drawing and description to you and the editors of the American *Agriculturist* and Western *Rural*. Nine months before the date of his patent, I have made and sold them; and allowed my neighbors to make and use them on the strength of my invention, so that by the act of abandonment, and by sending the drawing and description to the different papers, my invention might become public property. I invented and made the hive four years ago last October and November in Dubuque. Can any man under the circumstances have a a better or more legal right to make and use the hive than I have ?

I also sent a description and drawing to Mr. E. Gallup on the 15th of April last, which he noticed in the August number of the AMERICAN BEE JOURNAL.

The hive has been owned and in use by five different persons during the last year. Can the last invention enforce any pretended rights of inventor, against the first inventor, who made and used it years before the one patenting it ever thought of or invented the article patented ? I do not know that his hive in any way infringes on mine, except from his article in the December BEE JOURNAL.

I would like to have this published, so as to obtain the opinions of the many subscribers of the JOURNAL. A reply will be considered a favor by JOHN M. PRICE,
and others who are using or going to use the Hive.

To a thinking mind, says Mr. Jesse, few phenomena are more striking than the clustering of bees on some bough, where they remain, in order, as it were, to be ready for hiving. Where a hive is fixed over a swarm, the bees will generally go into it of their own accord, uttering at the same time, their satisfied hum, and seeming to be aware of the object in placing the hive so near them.

No scientific truth can possibly be too trifling or unimportant to be unworthy of preservation. --*Sir J. E. Smith.*

[For the American Bee Journal.]

Scarcity of Honey, With Rational Bee-Culture (Apiculture.)

Some centuries ago, the Old World was visited from time to time with devastating famine. In large districts of country sometimes half the population died from starvation. Then Progress came, and with her came "Bright improvement on the car of Time;" Science became the handmaid of practical agriculture; death from starvation was relegated to less civilized countries.

It will be the same with the bees. A few days of good harvest being sufficient to enable my populous colonies to fill their hives with honey, the whole secret lies in having strong stocks in readiness to secure the harvest which those few days offer.

The article of NOVICE, in the December number of the BEE JOURNAL, page 113, is a fair illustration of these allegations, and the parallel below is another:

BEES SELF-MANAGED.

During the winter and spring the forty bee-keepers within two miles around my apiary, let their hives remain on their stands, without interfering with the work of the bees.

The last year's honey, in large part consumed in the cold days of winter, was soon used up in rearing workers, together with a great number of drones.

The weather being very wet from April till the 10th of June, the bees killed their drones, then already full grown, and the queens stopped laying almost entirely. The apple blossoms yielded no honey. The white clover ceased blossoming on the 20th of May—three weeks earlier than in previous years; and by the 10th of June more than half the blossoms were already withered.

From the 10th to the 30th of June, the queens resumed laying; but the flying of the bees on rainy days had reduced the population of the hives, and the brood consumed the honey as soon as gathered.

On the 1st of July the hives were filled with brood, and young but not yet full-grown bees; and as the honey afterwards became very scarce, they mostly starved or remained weak from want of sufficient nutriment.

From the 5th of July the queens stopped laying. The linden trees had blossomed three weeks sooner than usual. Some hives swarmed very late, but the swarms and the parent stocks remained weak till winter.

By the 10th of August the colonies were again too weak for gathering honey from the summer flowers, such as hemp, coral berries, &c., and the fall flowers, buckwheat, &c. The queens resumed laying; but, as in the spring, nearly all the honey gathered was consumed by the brood as rapidly as it was collected.

On the 16th of September, brood and young bees were plenty, but the flowers were gone. The latter half of September, and the whole of October, having been very cold, the asters and all other fall flowers were cut short.

RESULT.

No swarms! No surplus honey!
Bees starving in winter!
POOR SEASON FOR BEES.

RATIONAL BEE-CULTURE.

As soon as my colonies were taken out of winter quarters, I gave them plenty of rye-flour, and opened the hives frequently in order to equalize all the colonies.

In April all my hives were filled with worker brood. I raised very few drones, as I allow scarcely any drone cells to remain in my hives.

In April, the honey preserved in my hives by underground wintering, was consumed in securing brood. I gave to all my colonies, every two or three days, in bad weather, several tablespoonfuls of syrup to maintain the laying of the queen. On the 10th of June, the bees had no capped nor newly gathered honey in their hives. I had to feed syrup to all my newly made swarms to keep them from starving.

From the 10th of June the remaining white clover gave plenty of honey; but for ten days it was so thin that it seemed to be very slightly sugared water. This continued till the 5th of July, my hives overflowing with working bees.

On the first days of July, all the cells unoccupied by brood were filled with honey. I emptied two or three frames (18 inches by 11) from all my hives. The bees had worked very little in surplus honey boxes.

As soon as the linden blossoms were gone, I opened my hives frequently, to remove frames for my swarms, as I had taken three swarms from every two old colonies. I gave them some sugar water till the 20th of July.

On the 10th of August the young bees were at work on the summer flowers, and later on the buckwheat; and filling three hives, they stopped breeding. By the 1st of September some of my hives were so filled with honey that the queen had no place for laying. I emptied two or three full frames from every hive. In three days these frames were filled again, and again emptied.

On the 16th of September the frost killed all the flowers; but my hives being too full of honey to winter safely, I had to exchange full frames with empty ones from my small swarms—thus equalizing them for the winter.

RESULT.

One and a half swarms and sixty pounds surplus honey from every hive.
GOOD SEASON FOR BEES.

MORAL.

I advise all bee-keepers to subscribe for the BEE JOURNAL, and to get the volumes for the three preceding years. The precepts contained in that collection, if rationally practiced, will convince every one *that honey is more abundant than good apiculturists are.*

HAMILTON, ILL., December 10, 1868.

CH. DADANT.

[For the American Bee Journal.]

Questions by Querist—No. 6.

Querist desires to come again before the readers of the BEE JOURNAL, with some more questions. He has been *silent* for some months, not because he had run short of questions, but because he has been too busy to prepare any. He is very much obliged to those who have made the *attempt* to answer his former questions, and would now request a solution of the following. If the reader cannot find a solution to some of the questions, please do not fly into a passion and become *personal.* The questions are regarded by Querist as practical ones, and he desires to have practical and philosophical replies.

No. 1.—Some bee-keepers take the position that *natural swarms will gather more honey, build more comb, and have more brood*, during the first week after they are hived, than *artificial* ones. Is this true? And, if so, *why?*

No. 2.—Suppose we have, at the beginning of the honey harvest, two colonies in the same apiary, each having twenty or thirty thousand bees—the same number of *young* and *old* bees—the same amount of worker and drone comb, a fertile queen equally prolific, the same quantity of honey and bee-bread, in the same style of hive, managed alike in every respect, and one gathers fifty pounds of honey and the other seventy-five pounds—what should cause the difference? We have cases on record very similar to the above, and who can give the solution?

No. 3.—NOVICE says, on page 113 of the BEE JOURNAL, that he cannot doubt but that it "saved them *honey* in some way or other." Now, is NOVICE sure of this? Please tell us what your bees used to make those little pellets of flour and meal *pack* so nicely in their baskets? Do you think it was water? If it was not water, was it not *honey?* If honey, whence did they get it, if not from their own hives? Are you sure they did not even go so far as to *unseal* their honey for the purpose named? If each hive used say five pounds of that rye and oat meal, how much honey think you does it take to pack it into bee-dough? Did you not also observe that your bees began to breed quite rapidly as soon as they began to work on your outdoor food? When they are raising young bees, do they not use up the honey just in proportion to the rapidity of breeding? Think this matter over, and give us your *revised* views.

No. 4.—NOVICE says that his *low, broad, flat,* "shallow things" have given him, the past two years, more *box-honey*, and have been stronger in *winter stores*, than the *tall, narrow* hives. Why this is so he cannot explain. Now, here is a chance for Gallup to *do* something. Come, gentlemen, let us have this great mystery explained. Quinby is tremendous on explaining "mysteries" and knotty questions, and why cannot he come to the rescue?

No. 5.—Mr. Bingham, on page 115, writes about preparing hives for winter, and comments on Langstroth's statement that he found *frost* on the top of a board placed above six thicknesses of carpet, and then assumes that no *moisture* can pass through a tight board placed over a colony of bees. Is that sound philosophy? Is not lumber so *porous* that heat can drive *moisture* through it?

No. 6.—On page 110, I find that the darker the hive the more contented the bees are. Now, would you advise me to paint my hive *black?*

No. 7.—On page 114, I observe that young swarms build worker comb *exclusively* at first. No exception to this rule, I suppose. Now, if a young swarm has a fertile queen, and she fills a small comb with eggs during the first forty-eight hours after being hived, and then dies from disease or accident, would the bees make much *worker* comb while they are rearing a new queen? or would the bees decamp?

QUERIST.

[For the American Bee Journal.]

Sorghum as Bee Food.

MR. EDITOR:—On page 118, vol. 4, of the JOURNAL, you say that a correspondent desires to know, through the JOURNAL, "whether *Sorghum* or *Imphee* is good for bees?" I answer that if the Sorghum is *good*, it is *good* for bees. But an inferior article is not good for bees or anything else. Bees will not consume what might be called a *bad* article of Sorghum; and if they consume what might be called an inferior article, it will have a deleterious effect upon them, similar to that produced by feeding an inferior article of sugar, or *Cuba* honey. In the spring of 1867, I had two colonies which were scarce of bees and stores, or, in other words, they were weak. About the first of April I commenced feeding them on Sorghum molasses, which I had procured in the fall previous for family use, having first prepared it by diluting with water, boiling and scumming it. This was what I called a good article of Sorghum, and which had been purchased by me in the fall of 1866 because it was good. It was granulated, and of a bright straw color. The supply of this being quite limited it did not last long; but, while it did last, the bees consumed and stored it away quite rapidly; were healthy, and improving. As soon as my supply of this was gone, I purchased half a gallon of common Sorghum molasses of one of our grocers, prepared it as I did the other, and gave it to my bees in the same vessels as the other; and, after waiting for two days and nights, I could not perceive that they had either consumed or stored away any of it. I then procured another half gallon of the best Sorghum I could find in town, (which, however, was of an inferior quality,) prepared it and gave it to my bees as before. This they gradually consumed and stored away until about one half of the supply was gone. Then I dissolved three pounds of coffee sugar, added it to what was left, reboiled and scummed the mixture, and gave it to the bees. This preparation they soon used up. During the time they were slowly consuming the third supply of Sorghum the dullness and stupidity of the bees was plainly perceptible, but when the supply of dissolved sugar was furnished them they soon revived, became active and vigilant, and none died afterwards.

BELMONT.

[For the American Bee Journal.]

Bee Journal,

CONTRIBUTIONS AND SUBSCRIPTIONS.

A new subscriber to the BEE JOURNAL, residing in the city of Memphis, Tenn., writes me thus: "I have just received the BEE JOURNAL. I observe that nearly all the BEE JOURNAL correspondents are from Northern climates, and that their experience in wintering bees differs materially from mine in this latitude. I never house my bees, but let them remain on their summer stands all winter, believing that they will do better there than if housed. My bees are wintering finely. They usually cast their swarms from the 10th to the 20th of April, depending on the earliness or lateness of the spring."

REMARKS.--The BEE JOURNAL designs to be *national* in its character, and therefore calls for the experience of bee-keepers in Southern as well as in Northern latitudes. But in whom does the fault lie if we do not get the experience of bee-keepers in the Southern States? It seems to us that they alone are to blame, for the columns of the JOURNAL are open to all. As for myself, I am very anxious to hear more about the bee-culture of the South, how the bees are wintered, how many months in a year bees gather honey, how long the *surplus* honey harvest continues, and the specific sources from which the honey is obtained. Please give us the names of your *best* honey producing plants and trees, and such other items as you may think will interest us. Let us have a perfect shower of contributions on bee-culture, not only from the South but from the North also, and from the East and the West. We must take the editor of the BEE JOURNAL by surprise; and, if we do, we may soon expect to see an *enlargement* of *our* paper—for we all should have an interest in the present welfare and future usefulness of the JOURNAL. But when sending articles for publication, please do not forget to send along the *names and money* of *new subscribers*. Why cannot every present subscriber add one *new* name at least to the present list? If you will I am quite sure that we can soon roll up the list to ten thousand paying subscribers. How many readers of the JOURNAL will agree to send in *ten* NEW names of subscribers during 1869? How many will join with me to send in fifty new names, each, within the year? During the past six months, I have sent the editor nearly twenty-five *new* names, and with very little effort too. And I have pledged myself to send fifty names during 1869. Cannot many other devoted apiarians and zealous friends to the improvement and extension of bee-culture resolve to do so likewise?

M. M. BALDRIDGE.

ST. CHARLES, ILLS.

The bee-keeper must not judge of the state of his hive in the spring by its weight alone, because at that time the number of young bees and larvæ in it weigh heavy, and may impose on the unwary for real wealth, when the stock of honey is nearly exhausted.--*Wildman.*

[For the American Bee Journal.]

Bee-Feed—A System.

MR. EDITOR:—Since bee-feed seems to range almost from lager-beer up to pure honey, and from wheat flour down to oat meal, I will, with your permission, also give the readers of the BEE JOURNAL my method of feeding—premising that, as honey is pure food for bees, we should feed no impure substitute.

I take eight pounds of coffee sugar, add seven pounds of boiling water, and evaporate one pound—making fourteen pounds of syrup, measuring about ten pints. Thus I make by weight any amount needed; set it by in crocks; and feed, by measure, to each stock the quantity it needs. In my estimate I have always counted one pound of sugar thus fed equivalent to one pound of honey.

For the last four or five years I have used syrup exclusively at all seasons of the year, and for every purpose needed. And for experiment, I have wintered several strong stocks almost exclusively on it, with good success; giving them their entire winter supply about the latter part of September, which they quickly sealed up. To any one who may think it contains too much water, or that it will not pay for the trouble of making it, I would say—"try it!" By following the above method I am never "guessing," but always know exactly what I am doing.

HENRY CRIST.

LAKE, STARK CO., OHIO.

[For the American Bee Journal.]

Necessity of Ventilation.

I have again proof that bees in their hives require the ingress of fresh air in order to health and life. I was this fall absent in New York until late in November, and when I returned I found the weather here had been for nearly a month quite cold, and the hives considerably covered with snow. Desiring that my little favorites might have the opportunity of unloading themselves again, in the event of an expected thaw, before a close hibernation of 4½ months, I did not move to put them in until the 17th of December, when I found the frames in all the hives covered with frost to within a few inches of the living cluster. They were otherwise in very good order, save in one hive in which all the bees were dead, although a good stock with plenty of honey.

On looking for the cause I found this hive, which was a well made one, closely sealed above, and the melted frost had run down and frozen over the front entrance, until it was entirely closed. So evidently, in a changing temperature, their own breath had been the means of sealing them up unto destruction. *My bees* need ventilating.

My wintering house is a kind of clamp, covered around and over with earth, and that again thickly with buckwheat straw, through which runs a ventilating chimney, with also a ventilating tube and a door of entrance through one side of the bee-house--which is used mainly for a workshop and store room. In this clamp, so arranged with a thermometer, I can regulate the temperature as I please. I find that when the temperature is raised above 40° F. the stocks generally manifest uneasiness; but are most quiet when the temperature stands at from 39° to 40° F.; which, in my clamp, requires the introduction of considerable fresh air. This is let in in such a way as not to admit light. I do not like to have the walls of a wintering house so cold that frost will form from bee breath on the inside. In that case, on every change to sufficient warmth, moisture and a damp room will be the result.

J. W. TRUESDELL.

WARWICK, CANADA, Dec. 25, 1868.

[For the American Bee Journal.]

Feeding Bees.

MR. EDITOR:—In this section (Chatauqua county, N. Y.) bees as a general thing have done very poorly last summer, probably because of the dry hot weather that continued through the entire honey season. The spring was cold and wet, thus making early forage almost a total failure. Early bee forage is not usually to be depended on here, in consequence of late frosts and cold high winds. Our principal honey-producing plants are white clover and basswood, mostly the former.

As white clover is our main dependence for honey, and it continues in bloom only a short time—five or six weeks at longest—we cannot take too much pains to have our hives well populated at its beginning. It is a well established fact that when bees are excited by daily employment in feeding or gathering honey, breeding is carried on most vigorously; whereas, if they are idle, the queen will lay only moderately, or cease entirely, until honey is again to be obtained, which may be too late, so far as white clover is concerned. The bees that gather honey from clover must be matured from eggs laid at least a month previous to its blossoming; because it requires twenty-one days to hatch a worker bee from the egg, and eight or ten days more for it to gain sufficient strength to work. Thus it will readily be seen that bees matured from eggs when white clover is already in bloom, would be consumers instead of producers in this locality. It is on the rising generation that we have to depend for surplus honey; and if we have our hives well filled with young bees, at the commencement of the honey harvest, we may well expect to obtain early swarms and a good yield of surplus honey. But if not, we shall certainly be disappointed if we expect either.

I have practised feeding my bees in early spring for the past three seasons, and feel confident that they have paid me for the little extra expense and trouble, as they swarmed several days earlier, and gave me double the quantity of surplus honey. As I feed all my bees, I have an opportunity to compare with my neighbors who do not feed. All bee-keepers know the advantage which early swarms have over late ones. In the season of 1867, I received from seventeen colonies 1,020 pounds of beautiful honey, and twenty-four young swarms. This season, 1868, I obtained from thirty colonies 850 pounds of equally as nice box honey, and thirty-four swarms. It will be seen from the above figures, that bees in this section have not stored as much surplus by more than fifty per cent. as they did in the preceding year—although they were fed and cared for precisely alike in both years. When the flowers do not yield honey of course the bees cannot gather it.

The construction of my feeder is such that I furnish my bees with water, rye flour, and sugar syrup, all at the same time, without attracting the attention of robber bees; and they feed on these readily, without diminishing the warmth of the hive, which is important in maturing brood in early spring.

I have tried many ways of wintering, but I prefer to leave them on their summer stands when in a suitable hive. I have used many kinds of bee hives, but for the past two seasons have been using one of my own invention, not feeling satisfied with those I had in use before. It is intended for wintering bees in the open air, being double—the frames, which are moveable, form the inner hive. It is simple and cheap in construction, calculated to be packed in winter with cut straw, chaff, or shavings; and is so arranged that all moisture arising from the bees passes into the packing, thus always keeping the bees warm and dry. As the construction of both my hive and feeder is different from any I have seen described in the JOURNAL, I will give a description of them, illustrated by an electrotype of each, if desired by you or the readers of the JOURNAL.

J. B. BEEBEE.

CASSADAGO, CHATAUQUA CO., N. Y.

[For the American Bee Journal.]

Hives, Queens, and Pollen-Substitute.

MR. EDITOR:—My first real commencement in the bee business was last spring. I bought twenty swarms, transferred nine into *American Hives*, and the remainder into Langstroth Standard Hives. I cannot say that the American meets my expectations as a convenient hive. The bees have built their combs with a bulge here and a depression there, that I find it impossible to take full frames out of one hive and put them in another without too much trimming. In fact I can scarcely get them out without breaking, which I never find to be the case with the Langstroth frames, even if built up in the same manner. The Langstroth frames being open their full length makes them decidedly easier to handle, as they do not require to be put back with such exactness as demanded by closed top frames.

My mode of transferring was to drive out the bees, and use all the combs that could be fitted in the frames. I first used fine store twine for fastening; then tried strips of brown paper, as recommended in a former number of the Journal. But this latter would not answer, as the bees gnawed it off in less than twenty-four hours, and of course before they had fastened the combs. I now use broom twine, which does very well.

The bees transferred in June scarcely gathered honey enough to live upon. They killed off all their drones at once. Linn came into bloom the latter part of the month. They collected enough from that and buckwheat to winter upon, except three swarms which I very foolishly divided at the time of transferring. The three queenless parts hatched out their queens, all of which were afterwards lost. I then put in a frame of brood into each, with the following results: No. 1 hatched out a queen. I was very busy at that time and did not look at it for ten days after. I found no sign of a queen, but plenty of moth-worms. I burnt that lot, giving the bees to another swarm. Nos. 2 and 3 hatched out queens on the same day. I watched closely when the drones were flying. At last I saw something uncommon about the action of the bees. Whilst watching, I saw a very small glossy black queen alight from her flight, but with no signs of impregnation, go into hive No. 2. She had hardly disappeared when I saw a very handsome queen go into hive No. 3, with signs of impregnation upon her. The results are, queen No. 2 laid drone eggs, which hatched out. No. 3 grew to be a tolerable swarm, considering the chance they have had. Query, was No. 2 a fertile worker? I could scarcely tell the difference between her and a common bee.

Bees in this vicinity failed to make any surplus honey to any amount. Will some of your correspondents inform me if they have any plan of feeding *bee-bread* in the hives, and what they use? Will rye-meal mixed to a paste and spread upon cotton cloth answer, if placed on the top of the frames.

Frederick Crathorne.

Bethlehem, Ind.

[For the American Bee Journal.]

New Smoker Described.

Mr. Editor:—I have an item which I think may be of importance to my bee-keeping frends, who are so very liberal in keeping the readers of the Journal posted in their discoveries and improvements in bee-keeping.

The item I have reference to is a convenient smoker, to subdue and control our bees, and is simple and very cheap. I tried various ways of smoking bees. I tried rags until I became satisfied of their inconvenience. I then tried pieces of decayed wood, but found that in laying the kindled wood about, much risk was incurred, as I came near setting our house on fire on one occasion. I also tried Quinby's Smoker, and that did not suit me. So in trying and experimenting I finally found something that just suits me, and we think that what suits us will be apt to suit others. It is on a plan somewhat like that described by Mr. Quinby. Take a piece of sheet-iron and make a tube about eight inches long and two inches in diameter. This is easily done with the small rivets used by tinmen; and almost any person can make it. Now make a plug for each end, tapering down each to a point. Bore a quarter inch hole in the plugs, and cover the large ends of the plugs with screen wire, which I bend so as to raise them in the centre; this keeps trash from filling the holes in the plugs. Next the one end is nailed fast, and the other is left movable that it may be taken out when the pipe or tube thus prepared is to be filled with decayed wood—which is to be kindled at the open end of course. You yet want a handle, which is made by boring a two inch hole in a piece of 1½ inch plank and shaping it to suit you. Then slip the tube into it, and it may be fastened by inserting a nail between the wood and tube. One plug should be shaped convenient to be held in the mouth when blowing smoke through the tube; though in all ordinary cases I simply blow *across the mouth* of the tube after lighting the wood. When I wish to blow the smoke through the tube, I insert the plug made for a mouthpiece, and then I can smoke the bees sufficiently in quick time. By adding fuel occasionally you can keep it burning any desired length of time, keeping the one end open when not in use.

Samuel May.

Eddyville, Iowa.

[For the American Bee Journal.]

Patent Claims.

Having published the claims granted to L. L, Langstroth, by the Patent Office, on what is known as the Langstroth Hive, in the earlier editions of the "Hive and Honey Bee," and in numerous small pamphlets and circulars, as well as printed them upon the back of all deeds conveying individual or territorial rights, sold for many years past, we had supposed that they were generally known to the bee-keeping public. But we find that many correspondents of the Bee Journal persist in speaking of the invention as it were simply a hive with movable combs of particular shape and size, and could not be constructed of different dimensions or general arrangements, without going away from the "claims" of the patent.

Others gravely describe hives which they have constructed and used, and which they announce are free to all, as they make no claim to a patent on them. These either do not know, or forget to state, that some of the principles, and in many instances the most important in their hives, are already covered by our re-issued and extended Letters Patent. As therefore several of the correspondents of the Bee Journal call for the patent claims of the various patents, perhaps those who are already posted will bear with us in requesting space to present again the claims granted to L. L. Langstroth by the Patent Office under re-issue No. 1,484, and which have been extended for seven years from October 5, 1866, by the then Commissioner of Patents.

CLAIMS.

"What I claim as my invention, and desire to secure by Letters Patent, is—

First—Constructing and arranging the movable comb frames of bee-hives in such a manner that when placed in the hive or case, they have not only their sides and bottoms kept at suitable distances from each other, and from the case, substantially in the manner and for the purposes described, but have likewise their tops separated from each other, throughout the whole or a portion of their length, substantially in the manner and for the purposes set forth.

Second—Constructing and arranging movable frames in such a manner that when they are inserted in the hives, the distances between them may be regulated at will, substantially in the manner and for the purposes described.

Third—Constructing movable combs and arranging them in the hive, in such a manner that the bees can pass above them into a shallow chamber or air-space, substantially in the manner and for any or all the purposes set forth.

Fourth—The shallow chamber in combination with the top bars of the laterally movable frames, or their equivalents, and with the perforated honey-board upon which to place honey receptacles, substantially as and for the purposes set forth.

Fifth—A movable partition, or divider, substantially as described, when used in combination with movable frames, substantially in the manner and for the purposes described.

Sixth—The use of movable blocks for excluding moths and catching worms, so constructed and arranged as to increase or diminish at will the size of the bee-entrance, substantially in the manner and for the purposes set forth.

The reader will observe that there is nothing in these "claims" which limits the arrangements of the hive, as far as regards shape, size, manner of supporting frames, side or top opening, &c. All these details can be, as they have been, varied to suit the ideas or locality of the parties using the movable comb frames—which are the central idea around which nearly all bee hive inventors, constructors, and patentees in late years arrange outside fixtures to suit their own tastes or the supposed wants of the bee-keeping public.

The decision which was rendered at Utica in 1866, a copy of which was published in the January number of the BEE JOURNAL, makes the first clear—the defendant being decided to have infringed the Langstroth Patent, in that he used frames constructed substantially as specified in our first and second claims. The case of Furman & Parsons (owning the Langstroth Patent in Iowa) *vs.* Silas Dodd (using the "Harbison Hive") decided by the United States Court at Des Moines, Iowa, May 15, 1868 might also be cited. When to these decisions are added the facts that the claims of the inventor have been thrice passed upon by the Patent Office, and upheld the last time in the face of a most persistent and unscrupulous opposition to the extension of the Patent, by certain infringing patentees of the hives, it appears only fair to say that his right to said Patent, having been fairly, fully, and repeatedly tested and confirmed, parties making use of any of his patent in hives of their own construction, ought to inform the public of that fact—especially when stating that *they* claim no patent, and leaving the inference that all are free to use all parts of their arrangements.

L. L. LANGSTROTH & SON.
OXFORD, BUTLER CO., OHIO.

[For the American Bee Journal.]

Form of Hives and Wintering Bees.

In the BEE JOURNAL, Vol. 4, No. 4. page 72, in an article headed "*Wintering Bees on their Summer Stands*," Mr. J. T. Langstroth, after giving his method of preparing hives, &c., says, "any bee-keeper can thus have his bees put up *to winter as well*, (*if not better*) on their summer stands, *than in the best winter depositories, and this even in Minnesota.*" As I have been called upon, in several private letters, for my opinion, I propose to give it for what it is worth, through the JOURNAL. Free, honest, open discussion is what is wanted, to get at the facts.

When I lived in Canada, I used some of the old fashioned straw hives, and had some of them made broad, and flat on the top; and it is a fact well-known to Canadian bee-keepers, that a straw hive will allow all the moisture to pass off, on the same principle that it would in the wool or carpeting. The combs will be perfectly dry in all weather. Yet in long continued cold weather my bees would starve to death, with abundance of honey in the hive. I know but very little about Minnesota weather from actual experience; but last winter I was hauling wheat to the railroad in Minnesota. One morning the temperature was 15° below zero at home; 36° below, at the station; and at Spring Valley, twenty-five miles further west, it was at 36° below.

Bees will stand any amount of cold when in the proper condition. We will suppose the bees in the warm central chamber, as he says. Now let us see their condition. They have unsealed liquid honey deposited in the combs, in the cluster, and they also have some sealed honey in their immediate reach—we will suppose enough to last them twenty days. Now then comes on a cold snap. In Massachusetts, or in Ohio where Mr. Langstroth lives, it is a rare occurrence if there is not a change in ten or fifteen days, so that the bees can expand; and if the combs are dry, they gather in more honey, and are soon prepared for another cold snap. But a few winters ago we had in Wisconsin (and Minnesota, I have every reason to believe is as cold as Wisconsin) a winter that for thirty-four days in succession the thermometer ranged from 10° to 36° below zero. In such long continued cold the bees consume all the stores in their immediate reach, and contract their cluster as small and close as possible; and to expand their cluster and move laterally to combs containing cold sealed honey, is something that I never knew them to do in such cold weather. The consequence is, they starve to death with plenty of honey in the hive. But if they have honey above the cluster for such an emergency, they are all right, for the warmth of the bees keeps the honey directly above them sufficiently warm at all times. Bees will perish (with the thermometer at 10° below zero,) if compelled to cluster between combs filled with sealed honey, nearly if not quite as soon as they would if compelled to cluster between sheets of ice.

In the cold winter mentioned above, every swarm of bees perished, with abundance of honey in their hives, that were attempted to be wintered on their summer stands in shallow hives—whether Langstroth hives or box hives. Yet in box and frame hives from twelve to fourteen inches high, bees wintered well on the same stands. But, for the sake of our friend Langstroth, we will allow that they winter well, even in Minnesota, if prepared as he directs. Yet what are they good for after wintering in this climate, in comparison with a swarm wintered in a hive with greater depth of comb? The readers of the JOURNAL will please take notice and govern themselves accordingly, that I never condemned the Langstroth hive, or the Langstroth principle. I only object to *the broad shallow form, for this climate.* And my reasons for this have never been successfully controverted.

Some time last spring, Mr. R. K. Crum (now editor of the Osage *Republican*) sold a number of swarms of bees at auction. He sold two to Mr. Charles Brownell, of Osage—one in a box hive, and one in a Langstroth. The combs in the latter were six inches in depth; and when I made a good swarm from his box hive, the other had just commenced to gain a trifle in numbers. They failed to store honey enough to winter on, and he destroyed them this fall. A Mr. Dockstader purchased five swarms, one in a Langstroth hive, three in Lee hives, and one in a hollow gum or log. I made swarms for him from his Lee hives, all of which have done well; and he made one from his log hive, but received nothing from his Langstroth hive, in which the depth of combs is seven inches. Mr. J. P. Long, a preacher of the Gospel at Osage, purchased one swarm in a Langstroth hive, the depth of comb seven inches. He had a box partly filled with honey, probably about ten pounds, and no swarm. Mr. B. H. Whitacre purchased two swarms, both in Langstroth hives, in which the depth of comb was about eight inches. I took a swarm from his about a month after my swarming, and my neighbors, was all done up for the season—too late for them to do anything this season. (Mr. Dockstader and Mr. Whitacre are readers of the BEE JOURNAL.) These swarms had all been wintered in Mr. Crum's cellar, and wintered in a good condition. I believe he had the agency of two counties for the Langstroth hive, when I came here, and he condemned it and bought the right to the Lee hive. He did not know that he could *alter the form* and still have *a Langstroth hive.*

What we want, and what we must have in this latitude and further north, is a hive with at least ten inches depth of comb, if we expect to have any satisfaction from our bees. And it must be in a more compact form, so that the bees can cluster naturally and the queen can breed up to her full capacity early in the season; or else we shall be left far in the rear of our neighbors. We must have this, whether we winter in special depositories, or on their summer stands.

Mr. Furman, of Cedar Rapids, has the agency for the Langstroth hive in this State. We will suppose that he comes into this part of the State, with his hive in the broad shallow form. He will be met with such remarks as this—"We have tried the Langstroth hive, and it is good for nothing, &c., &c, We like the Kidder hive, the Lee hive," or some other of the thousand and one hives that have been got up since the introduction of the movable combs by Mr. Langstroth. Well, there is no use wasting any more words. Friend Furman, furnish us with a form of hive suited to our climate and we shall not have the least particle of fault to find. Call it a Langstroth hive, and then we shall not be throwing away our money to other parties. Remember, I never have doubted or said that the broad, shallow form was not adapted to Mr. Langstroth's climate; neither did I ever object to the Langstroth principle. There is no trouble in wintering bees in the shallow form of hive in a special depository; but the spring plays the mischief. Our hives become almost depopulated before the weather gets warm enough for the queen to breed as she should.

Finally, friend Furman, if you or any of your agents come up this way, do not fail to call on Gallup, and you will not only find him good-natured, but chock full of gas.

E. GALLUP.

OSAGE, IOWA.

[For the American Bee Journal.]

All Worker Combs.

In all the articles that I wrote for the JOURNAL, I wish to have it distinctly understood that I wrote for the benefit of those who know less than I do, and not for those who know more. Neither is it necessary for beginners to follow the instructions to the letter. They should strive to understand the theory or principle, and then they can go to work intelligently. Now some individuals write to me that they laugh at my productions. Well, I would sooner hear you laugh than cry, at any time. But remember this: Were you born a natural bee-keeper with all the necessary knowledge, or did you have it to learn? I had to learn it, and there are others still in the same fix. Instead of laughing, would it not be better to give us a helping hand? Give us some of your great knowledge through the JOURNAL. I for one, am just as anxious to learn as ever I was. But "enough of this."

How to secure all worker comb is the question. We will suppose you have few swarms in frame hives to begin with; and, for the sake of illustration, we will further suppose that you have them in the form that I use (for I know exactly how that works.) About swarming time take out one queen and a smallish swarm from a good strong stock, and hive them according to my directions, how to make natural swarms artificially. (See July No. B. J. 1868.) Leave the old swarm on its old stand, because if the bees are not removed, they are not so apt to raise unprolific queens; or, in other words, they will raise natural and not forced queens. This question I have discussed in an article on queens and queen-raising. Adjust your division board in the next swarm to suit the size of the swarm; as their first want is worker comb, they will build worker comb in all cases. Always remember to give the young swarm one comb containing nearly mature brood, some unsealed larvæ, and honey. As soon as the queen cells are all sealed in the old stock, separate them, and start a nucleus for each, containing one comb with larvæ and honey. Leave one queen cell in the old stock. Should you take the comb with the cell attached from the old hive, replace it with mature brood from another hive, for the object is to keep the old stock strong and populous. Remember also that you have not a laying queen here, to supply losses.

Your new swarm will build at least eight worker combs, by inserting the empty frame invariably in the centre to fill ; and I frequently have them fill the whole hive. As soon as they commence building drone comb, go to the old stock and take out full frames enough to fill the hive which contains the old queen, for by this time your young queen has hatched. Insert your division board in the old stock containing the young queen, and give them empty frames, one at a time, for them to fill, placing these in the centre of the cluster, and they will build worker comb invariably. Remember that when you take out a frame where an old queen is, if the bees attempt to fill the empty one with drone comb, it is better to move the full combs closer together and insert an inch board in place of a frame. Then you can put in a full frame, by and by, from some swarm that has a young queen. Your nucleus can be strengthened up, after the queen is fertile, by transposing with your strong colonies that have old queens, or by drumming out young bees from old stocks. I prefer the latter method, because I can then take out just what I want, and no more. Your nucleus must be strong at the commencement; that is, use one frame and bees enough to occupy that frame and be somewhat crowded, when the division board is properly adjusted.

Remember what I have already told you, that early in the season the tendency in all the swarms that have a prolific queen, is to build worker comb, providing they are not gathering honey too rapidly. With an unprolific queen, or one that is failing, whether young or old, the tendency is to build drone comb. Late in the season the tendency is to build drone comb in all swarms, especially if built at the outside of the cluster. From young swarms, with young queens, that are building combs faster than the queen can supply them with eggs, you can take one comb and exchange with some swarm where the queen has not room enough for egg-laying. That is, exchange an empty comb for one filled with brood.

There is little danger of swarming where the old queen is, provided you occasionally draw off some of the working force, to strengthen other swarms.

I have been asked this question repeatedly—"How do you mix up your bees without having them to quarrel ?" Drum out your bees into the cap of the hive; deprive them of their queen and put her back where she came from. In a few minutes the bees will become aware of their loss, and then you can put them where you want them—a part in one swarm and a part in another, if you choose. They will be kindly received in every instance. At the time when they are raising abundance of young brood and gathering honey, is the very time to perform these operations. In drumming out, do it in the middle of the forenoon, when the old bees are out at work ; thus you will get most young bees that have not yet become located, and they will stay where you put them. If you have an old queen that has commenced failing, or a young one either that has commenced doing so, you will get very little worker comb. In fact, the more prolific the queen, the more worker comb you will get in building up a swarm. After your swarms are all built up, give abundance of box-room and free access to the boxes, and you will have but little trouble from natural swarming.

I do not follow any set rule in making swarms, making them sometimes in one way, and sometimes in another; but the new beginner must know one way, and the reason for it, and then he can do as he chooses.

In transferring I have frequently to use up small pieces of comb. I put a cross-bar in the middle of the frame, and fill up the upper part with pieces of comb, and the bees invariably build drone comb below the cross-bar, unless I attach guide worker comb to the under side of the bar. Now, friend H. B. King, was not your comb built, as Gallup said it would be, down to your centre bar ? And if your centre bar had not been there, would not the bees have extended a part of those combs down to the bottom all worker comb ? You will remember that I did not say the American hive, but the form of the hive. Furthermore, I have never recommended the American Hive to any one. I have frequently, in my articles, mentioned several forms of hive for the sake of illustration, but I have endeavored in all cases to say the *form* instead of the hive itself. I have given the reason why the shallow form of the Langstroth hive does not work in this climate. But I still recommend the Langstroth Patent over all others.

ELISHA GALLUP.

OSAGE, IOWA.

"When, amidst the solemn stillness of the woods, the singing of joyous birds falls upon the ear, it is certain that water is close at hand."—*Livingstone's "Zambesi."*

Bees are not apt to sting when they swarm ; therefore it is not necessary to take much extraordinary precaution against them on such occasions.—*Wildman.*

[For the American Bee Journal.]

Bee Disease in Kentucky.

Mr. Wagner:—Your favor of the 2d instant came in my absence. I answer as soon as I could note contents.

Bees in this section have done poorly all the season. While the poplar was in blossom they did well for about eight days; but till they commenced dying, they only made a support. They produced about one swarm in a hundred, last spring.

About the 20th of August, I noticed a great number of dead bees on the bottom board and in front of a hive. On examination, I discovered that about the half of them were still alive, crawling about among the dead; and when I placed a handful of them by themselves, I found some four days passed before life was extinct. But in ten days from the first attack every stock of mine (twenty-four in number) was dead.

The bees of some hives did not all get sick or diseased at the same time; and the well ones cleaned out the dead. In some cases there were not a dozen bees left in a hive. So it has been with our friend Broil, who once rejoiced in forty stands, and awoke to see (as he thought) that his bees had fled to parts unknown.

My yard and garden were strewn with the dead and dying—many having gone out to get relief from the dead at home. All the honey made this season is very dark and bad flavored.

We have but few individuals in this part of the State who have as high as one hundred stocks. I know in Oldham, Shelby, and Jefferson counties, four men with one hundred stocks each, twenty with sixty, fifty with thirty, one hundred with fifteen, and one hundred and fifty with from one to ten. Now I am satisfied that of all these, not one stock in a hundred is alive to-day. Yet nearly all I have examined have plenty of honey left. The strongest stocks, in numbers and surplus, were as liable to go as any.

I have not heard of a swarm being seen astray this fall in either of the three counties named; and if seven or eight thousand had taken wing, I presume some one would have been seen. Therefore this part of the account is a *hoax*.

Yours truly, W. F. Cunningham.

Middletown, Ky., Dec. 21, 1868.

[For the American Bee Journal.]

That Bee Disease.

In September last, when the first cold weather set in, my bees began to die. First, I found in one of my best stands, with all the frames full of sealed honey and some in boxes, the bees all dead. After that the bees began to die in all my stands, mostly pure Italians, and some hybrids. First about one third of the bees would be dead; next I would find the queen lying dead before the hive; and in about a week more the whole colony lay dead in and around the hive. Sometimes the queen would live, with a handful of bees.

The hives were full of honey gathered the latter part of the season; and the least ones had enough to winter on. In this way I have lost forty stands, and have now only fifteen skeleton colonies, which I think will also perish before spring.

I first thought I was the only victim in this way, but I have now ascertained that all the bees have died in this neighborhood, and as far as thirty miles north and eighteen miles south. Yesterday I saw a letter from Kentucky, in the *Country Gentleman*, where a man thought his bees had stampeded. I suppose they stampeded in the same manner as mine, from the hive to mother earth.

Some of the colonies had brood, others had not. Late in October all the queens had commenced laying again. To some colonies I gave three queens in about two weeks, and they lost each in turn.

My bees are Italians and hybrids, in movable frame hives. My neighbors have black bees in boxes and "gums."

In looking over my German books, I find that bees sometimes die for want of bee-bread; and on examining the frames of the dead stands, I find pollen very scarce. Some had none, while others have died with some of it in the combs.

Have any of the old bee-fathers any idea of the nature of this ailment? I do not find anything relating to it in Mr. Quinby's book. There was no foulbrood in the hives. Last year I lost some stands, possibly from the same cause. We have had now two or three late springs, the time when bee-bread ought to have come in. I think mustard is the best crop for pollen. I had melilot clover last year, but could not find my bees to work on the white blossoms, and plowed it under.

Please publish this at an early date, as I am desirous to know the cause of this bee mortality.

T. Hullman, Sr.

P. S.—Friend Baldridge told me last spring to give the bee-veil to my wife, if I had one. I am happy to tell him that I have one of the best of wives; but to open fifty or more hives of bees, cut out queen cells, drone comb, &c., without protection to the face, I cannot. He is ahead of me in that, and will please give me his *modus operandi.* My bees have a partiality for the eyes, and one or more sting in or about them I do hate, and before I commence blowing smoke it is usually about too late. I do not think the Italian bees less inclined to sting than the black. I had queens from different apiaries. The finest and handsomest were from Mr. Gray, of Reily, Ohio.

Some factory might make stuff for face protection. The common bobbinet is too close and heavy. I always had some stands that were "inapproachable."

If any bee friend should come this way, he will please stop and see the condition of the hives and combs in which the bees died. It is my opinion that the bees died for want of pollen. If this is the case, what could be done? Would not meal be injurious if given to the bees in fall and winter. T. H.

Terre-Haute, Ind.

[For the American Bee Journal.]

That Bee Disease.

Mr. Editor:—I see from an article in the Journal by C. E. Thorne, of Selma, Ohio, that there is some disease among his bees. The same disease (if it be a disease) is prevalent here to a great extent. In this and the adjoining counties I have heard of half a dozen more men who have lost their whole apiaries of from thirty to forty stands each. The bees die, leaving the hives full of honey. Some have bee-bread or pollen, and some have none. All I have heard of dying are black bees.

Is it a *dsease*, or is it *old age?* Bees in this section ceased to gather any honey after the 1st or 10th of July, except the Italians, which gathered considerable from wild flowers, mostly the lady-slipper, (I do not know its botanical name,) a weed that resembles smart-weed. When they ceased gathering honey they ceased breeding, and as breeding ceased about the 1st of July, the bees are now over four months old. Is not that their natural term of life.

My bees are all Italians or hybrids, and appear healthy and in good condition for winter. They stored about two pounds surplus honey per hive, forty hives.

Please send me the November number of the Journal. I failed to get that number, and as I consider each nnmber worth two dollars to me, I do not want to have my file broken.

H. Nesbit.

Cynthiana, Ky.

[For the American Bee Journal]

The Bee Disease.

Mr. Editor:—I see in the December number of the Bee Journal, an account of a new disease among bees.

On the 8th of October last my strongest Italian stock was taken in a similar manner, and although the disease did not last three days, it reduced the stock from a powerful swarm to a mere nucleus. The bees seemed to drop in a stupified state on the bottom board and crawled slowly to the entrance, then out on the alighting board, from which they dropped into the grass. They seemed to want to get as far from the hive as possible before dying.

I supposed my bees had been poisoned, as I knew they had been rather mischievous—having even entered the hives of my neighbors, carrying off the winter stores without permission. In one instance they took possession of a dining hall, and drove the family from the breakfast table on which there was honey. I was told they even came through the keyhole to hold possession. Now some of the knowing ones claim that they can poison bees, when they attempt to rob others. How that is I do not pretend to know. I have come to the conclusion that my bees were not poisoned intentionally.

I have tried various experiments with the dead and the dying bees, but with no satisfactory result. I yet believe that my bees had been working on some poisonous substance; but that it was so far from my apiary that, as the weather came off cold, the bees could not keep up the line of communication, and that those that found the forbidden fruit died before they could lead others into fatal temptation.

Now I do not believe that bees naturally would forage on poisonous substances; but that in some cases, as in the extreme excitement of robbing, they may partake of substances which, under other circumstances, they would not notice.

May not some such disease as Mr. Thorne describes be the cause of the sudden disappearance of the bees in the neighborhood of Lexington, (Ky.,) the bee-keepers not noticing the hives till the bees were all gone?

John T. Rose.

Petersburg, Mich.

[For the American Bee Journal.]

More About That Bee Disease.

Will some of your old bee friends please answer the following, for, in all probability, in their experience, they may have met just such cases.

First. This has been the most fatal season to the interests of the apiarian that has probably ever visited them, at least in this section—very little honey being gathered in any one's apiary.

Second. In most locations no swarms issued from any of the old colonies—notwithstanding they lay out on the sides of their hives in great numbers.

Third. Where a swarm came from an old hive, that hive invariably, I may say so, died. In all my inquiries among bee-men I know of but one instance to the contrary—and I expect that will die.

Fourth. Where they have died, they have *invariably* left large quantities of honey. And, what is stranger still, in not more than one case in ten is there any bee-bread. So universal is this lack of bee-bread, that it has been remarked by every one, and I have been at great pains to inquire of all the old bee-men living in the country. Besides this, so far as I can learn, all the swarms of this year have also died. The bees do not starve and fall down in the hive; for, in opening a hive, there may often be found a dozen or so, and often not one.

Now, we would like to have some information on this subject; and, if there is a remedy, should be pleased to have it made known. Why is it that it is those casting swarms that invariably die? And why is there no bee-bread?

Clayton.

Bloomington, Ind.

When in natural swarming the bees fly too high, they are made to descend lower and disposed to settle, by throwing among them handfuls of sand or dust; probably the bees mistake this for rain.—*Wildman.*

THE AMERICAN BEE JOURNAL.

WASHINGTON, FEBRUARY, 1869.

☞ THE AMERICAN BEE JOURNAL is now published monthly, in the City of Washington, (D. C.,) at $2 per annum in advance. All communications should be addressed to the Editor, at that place.

Unavoidable circumstances constrained us to furnish "copy" for this number of the BEE JOURNAL at an earlier period in the month than usual, and thus several articles intended for it had to be deferred — among these the description and illustrations of the Eureka hive.

In addition to the account of the bee disease in Kentucky, Indiana, Ohio, &c., contained in this number, we have received several other communications too late for insertion this month. The disease is most generally attributed to the want of pollen. We doubt whether this is correct. The want of pollen might restrict and finally prevent the production of brood and wax; but we do not think the effect would be so sudden, sweeping, and widespread.

A correspondent desires to know whether any mode of feeding rye, oat, or buckwheat meal to bees, in the interior of the hive, in early spring, has been devised; and, if so, would be pleased to have the process communicated through the BEE JOURNAL.

We have received from Mr. J. Winfield, of Canfield, Ohio, a neat pair of forceps or tweezers, intended to be used for removing dead bees from cells in which they died. We consider it a useful and convenient implement, now that the value of empty combs is properly appreciated. Mr. W., we understand, would send a few by mail, postage prepaid, at fifty cents each, to such as may desire to have them.

The article on Foulbrood contained in our present number, is a close and accurate translation of the essay on that subject by Dr. Preuss, recently published in the *German Bienenzeitung*, for which we are under obligations to the "Devonshire Beekeeper," Mr. Woodbury, of Mount Radford, England.

The series of articles on that subject contained in this and the two preceding numbers of the BEE JOURNAL deserve to be carefully studied by all those in whose apiaries the malady treated of has been introduced. We do not, indeed, wholly concur in the opinions of the writers, but think that, between them, substantial truth has been reached. From a review of the matter as now presented, it seems most probable that the disease originates in putrescent pollen, as Mr. Lambrecht claims; and is diffused and perpetuated, according to Dr. Preus, by the fungus which finds a soil congenial to its developement in that decaying substance. If this be so, the remedy is to be sought in the removal of the pollen, and the application of means to arrest and suppress the fungus.

The "BEEKEEPER'S GUIDE BOOK," by E. Kretchmer, of Red Oak Junction, Iowa, of which we have just received a copy, is an excellent little manual, embracing much information in practical bee-culture, which beginners especially will find serviceable.

[For the American Bee Journal.]

Introducing Queens, and Wintering Bees.

LETTER FROM PORTLAND, MAINE.

Having about a dozen hives of black bees that I wanted to Italianize, I invited J. L. Hubbard, Esq., of Walpole, N. H., to visit me and bring his pocket full of Italian queens. He accepted my invitation, although we were strangers, brought a beautiful lot of Italian queens, took out my black queens and introduced the Italians. It was really interesting, instructive, and amusing to witness his manner of handling bees. I think I could Italianize an apiary now with safety. Still, if I had it to do, I would invite Mr. Hubbard to help me, as he is so well posted and his charges are very moderate.

In order to assist in forwarding the bee enterprise of this State, I have bought twenty hives of Italian bees to distribute in this vicinity next spring. A part of these are already sold.

I have removed my bees into my store cellar, where I invite my friends to look at them almost daily. I set them on a hanging shelf about three feet from the ground. This keeps the rats and mice from them, and enables me to pour my ashes under them to absorb moisture. The temperature ranges from 40° to 44°. The bees appear to be doing well, and are comfortable and content.

The cellar is not quite dark, but the bees are not stopped in. I had one colony stopped in, and although they had *abundant* ventilation, they were still so very uneasy that I was obliged to let them out, when they soon became quiet.

You may hear from me again, if no one better qualified keeps you posted up in the beeology of this State. M. G. PALMER.

PORTLAND, ME., December 25, 1868.

[For the American Bee Journal.]

The Season of 1868.

Mr. Editor :—The white clover was of short duration this season on account of the drouth: consequently the swarming season was very limited. When the clover failed our bees ceased swarming. I had only sixteen swarms from thirty-three stocks, which was an average increase in this country.

The bees scarcely gathered their living from the time the white clover failed, until the appearance of the buckwhat blossoms—a space of four or five weeks. Only twelve of my young swarms were in a condition for wintering separately. My old stocks are in fine condition for wintering. I had two hundred and twenty-five dollars ($225) worth of surplus honey this season; but not a pound did I get from my swarms.

This country is well adapted to white clover and buckwheat. These two crops are our main dependance. I have proposed to furnish the seed for any one that will sow ten acres and upwards of buckwheat, over and above their average crop for the last three years—provided it were sown within one half mile of my apiary; and I am satisfied that I will get pay for the seed, if it be a good season and fine weather when it is in bloom.

Some time after I took the surplus honey from off the hives, I found one box partly filled and unsealed, that contained honey not much unlike buckwheat for color, but of a bitter taste. Now which hive it was taken from, and whether the rest of boxes of that hive contained the same kind of honey or not, I am unable to say; but we found no bitter honey before nor since. This bitter taste resembles that of black cherry bark. Might this honey have been gathered from the black cherry blossoms ? If so, why was there no more like it ? There are not exceeding twenty cherry trees in the range of our bees' flight.

Another observation I have made. I found at two different times, a comb in the honey-boxes that contained three lengths of cells filled with honey. The middle and one outside length contained clover honey; and the other outside contained buckwheat honey. *This is surely a very uncommon occurrence;* at least I never heard of the like before.

I have this fall (1868) procured three beautiful Italian queens, and got them safely introduced, as follows : two from W. J. Davis, of Youngsville, Pa. On receipt of these two queens, I drove out the natives; caught and secured their queens; caged my Italian queens, placed them between the central combs and returned the workers to their respective hives. I let the Italian queens remain caged ninety hours, and then liberated them. My third queen I received from the National Beehive Company, at St. Charles, Ills., in one of their recently improved study hives, which no new beginner should be without—it is a completely finished hive, got up by a workman. But the bees, both queens and workers, from both parties, are what suits my eye. They are fine specimens. My third queen remained caged just one week. On a recent examination my queens are all right, except that they have not laid any eggs. Allowing me to judge from the pages of our valuable Bee Journal, I have got as pure Italians as are in the United States, though I cannot give an opinion as to their superiority, until I have a trial; but if their qualities are as superior to the natives as their looks and appearance, I shall be satisfied.

I use the double-cased Langstroth hive mostly—some one story with boxes; and some two-stories of frames. I get much the largest amount of surplus honey in the frames. See plate VII, figure 20, "Langstroth on the Hive and Honey Bee." I prefer this style to any other for wintering bees on their summer stands. My hives are all planed and painted. I get my boards planed at the planing mill, run my saws by horse power, &c., and do all the cutting, ripping, and rabbeting with circular saws.

M. Wilson.

Meredith, Pa.

[For the American Bee Journal.]

Rye and Oat Meal.

Mr. Editor —I see that some of your correspondents do not know how to start bees to work on rye or oat meal in the spring. I have had the same difficulty until last spring. After the meal is set out, and while bees are flying freely, sprinkle a few drops of *Essence of Anise* near the meal, and it will not be over five minutes before they will be at work on it lively. In hunting wild bees the essence is used to good advantage, for its scent will attract them. This I have also tried.

All Worker Comb.

In the November number of the Bee Journal for 1868, under the head "To obtain all worker comb," it is recommended to use guide combs in the space left just wide enough for worker comb only. That is not good in practice with me, as I have found that bees will raise drone brood by building the cells short on one side of the comb, and long enough to accommodate drone brood on the other. And when they could not put it in so, they built short pieces crosswise; and this not in one instance only, but in many.

C. Hodgkins.

Marlboro', N. H.

Any one who goes through the world with his eyes open, is sure to find out something that even professed naturalists did not know before. —*R. Holland.*

It is rare to find men doubting facts, and still rarer to find them doubting whether the facts be correctly coördinated.—*G. H. Lewes.*

Be not too hasty to erect general theories from a few peculiar observations, appearances, or experiments.—*Dr. Watts.*

[For the American Bee Jounral.]

To Get Bees Out of Honey Boxes.

I have never had much difficulty in getting boxes filled with nice honey; but I have had great difficulty in getting the bees out of the boxes after their removal from the hives. I have taken off boxes early in the morning, at mid-day, and late in the afternoon; have set them near the hive, and away from the hive, covered and uncovered, with smoke and without smoke; in short, have tried all sorts of ways. Still, many bees, after leaving a box, would return for a second load of honey and bring with them a swarm of hungry robbers; so that it was impossible to leave removed boxes until the last bee had been driven or coaxed out, and every hole covered. This took too much time, and I sought a better plan. Why not set the boxes on an empty hive, in some remote part of the apiary? That worked very well for a little while, but the robbers soon saw through this arrangement. Then I must have some kind of door or outlet to the hive, through which the bees could pass out, but not return. That was soon devised. A piece of tin was placed over the entrance, with four holes cut in the lower edge, about the size of a bee, and each hole covered, on the outside, with a small isinglass door, hung on a bit of fine wire, so as to work with the utmost freedom and with the least possible friction. All the light admitted into the hive must pass through these little isinglass doors, and thither the bees within flocked. The slightest push against one of these little doors was sufficient to open it, the bee passed out, and the door shut behind him. Hundreds of bees followed him with the same result. This was most satisfactory. But wait, here comes a bee back for a second load. Now for the test. Can he enter? You may be sure he will try. He does try every door—but fails. Bees are coming out of one door while he is trying to enter another. Presently one opens the door he is at, and in goes our little thief. By this time half a dozen have returned, and in ten minutes more the experiment has proved a failure; for they have in that time learned to push the doors to one side, and without difficulty. This might have been remedied by putting a pin at the sides of the doors, to prevent their moving sideways. But this plan was abandoned for something else that occurred to me just then, which I put in practical operation with entire success. Not a bee got back into the hive after that. I could leave a hive with a dozen boxes (resting on slats put across the frames,) go to dinner or down town, or leave it all day, and be certain all the time that not a bee could enter it from the outside; and every bee within could leave at any moment with perfect freedom. The plan adopted was simply that which is used in a certain kind of rat-trap in common use, and the application was made in this way. Through a cork bore a hole large enough for a bee to pass through: cut ten or a dozen pieces of fine wire, say each an inch and a half long, press one end of these wires into the cork around the hole, and so near together that a bee cannot pass between them. Let the outer ends of the wires converge together, leaving an opening at the ends just large enough for a bee to pass out through it. Put the cork to the entrance of the hive, with the wires standing outward, and slanting up a little from the alighting board so that the bees from the outside can pass under it, while trying to get in. Close the entrance all round the cork, so that all the light that enters the hive must pass through the hole in the cork. This will bring every bee within to this hole, for a passage out. I will guarrantee it to work perfectly.

R. Bickford.

Seneca Falls, N. Y., Oct. 1868.

[For the American Bee Journal.]

My Mode of Straining Honey and Wax.

Last autumn I took up fifty old box hives, from five to ten years old. As the combs were mostly very thick and tough, I did not consider them worth saving for future use, and concluded to strain honey and wax from them. This is by no means an easy task. The honey-rendering machine would not work, as the honey was too thick, even after warming it up. If the combs are melted, the honey obtained has always some taste of bee-bread, and is disliked by many. I therefore concluded to make a new experiment. The hives with the honey were kept in a warm room for twenty-four hours, the combs then cut out, and those containing honey selected from the empty ones. They were next put under a cider press, and the honey not granulated was obtained free from the taste of bee-bread, though somewhat mixed with particles of wax; but these could easily be removed by straining through a course towel, after being warmed up some.

Very old brood combs are considered by most bee-keepers as perfectly worthless, even for obtaining wax. This is by no means the case. I prepared a bag from a strong coffee sack—using the inner finer one, holding about a bushel. Into this I poured the melted combs, and placed it under the cider press. On turning and shifting the bag several times, nearly every particle of wax can be pressed out. This is to be collected in a washtub, and after cooling somewhat, taken out in balls. After finishing the straining, the crude wax obtained is to be again melted with some water in an iron kettle, and then poured into forms to cool.

For melting the combs, I use a couple of iron pots holding about ten quarts, adding about two quarts of water to each kettleful; stirring it well during the melting, and then pouring it hot into the press-bag, and pressing only a bagful at a time. With the assistance of one man, I pressed out 163 pounds in a day and a quarter; but the remelting required nearly two days more, for one person—not having pots enough to melt more than 25 pounds at a time.

A. Grimm.

Jefferson, Wis.

[For the American Bee Journal.]

Honey Dews.

While working under a young white oak tree one day last summer, I heard an unusual humming above, as if produced by a swarm of bees.

Looking upward, I found that the noise was occasioned by bees, and that the leaves were coated with a sweet varnish, which I immediately concluded to be honey dew. Having read Quinby's theory as to these dews being the exudation from a species of plant louse, I climbed the tree, to see if I could find any evidence in favor of his conclusions.

The under leaves were all covered with the dew, but had no sign of insects; but when I reached the top I found no dew, but on the under side of the leaves were a number of green and white insects, varying in size from that of a musquito to so small as to be scarcely visible. I further noticed that where the leaves were very close together, there was but little if any dew; but where they were fully exposed to the sun, the species appeared to make no difference, all being covered alike.

C. E. Thorne.

Selma, Ohio.

[For the American Bee Journal.]

Bees.

As it is sometime since we wrote anything in the interest of beekeepers, for the Bee Journal, we hope you will, if compatible with their interest, give publicity to the following items about bees:

The winter so far with us, has been one of moderate severity upon bees; the weather being of such a character as to prevent them from leaving the hives to discharge their fæces, while it was warm and temperate enough to allow them to change their position among the combs. Nine-tenths of the bees in this locality (excepting Italians) are ill provided with honey, for the winter, the past summer having been the most unpropitious for honey we have experienced for years. The continued cloudy and rainy weather during the fruit blossoms prevented the bees from getting a supply of honey at a time when it was so necessary to the production of brood, and so completely disconcerted their arrangements for swarming, that they scarcely recovered from it the whole summer. The consequence is that only the very strongest of black colonies, and such as were fed in the fall, will survive the winter. Our stock being mostly Italian, are better provided for, and we expect to take the most of them through.

We have hitherto had considerable difficulty in getting our stock pure, as many of the queens we purchased from venders to breed from, were tainted with black blood. True the progeny of some of them were characterised by three yellow bands, but the third band was so imperfect, or indistinct, as scarcely to be seen; while the appearance of the abdomen from those bands to its point, differed very little from that of the black bee.

We received a queen bee last summer from Mr. A. Grey, of Reily, Butler Co., Ohio, which we believe would have been a prize, had we been so fortunate as to save her. But we lost her in introducing her in the second hive. We were lucky enough, however, to succeed in raising three queens from her, two of which, we believe mated with Italian drones. At least we hope so.

But of all the queens in our possession, the one we esteem most highly is one we received from Mr. Adam Grimm, of Jefferson, Wis., which was selected by him for us, in consideration of our paying him one dollar in addition to the published price, for the extra selection. This queen produces the brightest and prettiest progeny we ever saw, and we would not take one hundred dollars and do without her. I desire to return my thanks to Mr. Grimm for so valuable and handsome a queen, and hope that he will be so kind as to favor me, next summer, with another of the same sort.

As long articles are tedious to both publisher and readers, I will close the present remarks with the promise to give the Bee Journal and its readers, hereafter, a synopsis of my experience in the art of feeding and wintering bees.

John L. McLean.

Richmond, Ohio.

[For the American Bee Journal.]

Straw Movable Comb Hives.

Referring to the notice of the straw movable comb hive in the August number of the Bee Journal, allow me to say that I would have given detailed directions for making, had I not feared that, without a model, such directions would be of little service. Even with a hive before him, a new beginner, not accustomed to work in straw, would probably find difficulty in making one. Will not Mr. Van Slyke, who is acquainted with the hive and its construction, give some account of its adaptation?

It is the perfect Langstroth hive, only substituting rye straw as the material in place of wood. If bee-keepers desire to make a trial of it, I will deliver a working model at the Express office here, directed to any address, on receipt of five dollars; the hive to be of full size, containing nine frames, and to be accompanied with full instructions. By clubbing and ordering a hive, the cost to each member will not be much. If a hive, with frames of special dimensions be desired, the length and depth of frame should be stated when ordering.

What Mr. Davis desires from me he will find in the Patent Office Report for 1865; the *claim* in vol. 1, and the diagram in vol. 2, No. 47, 109.

W. Henchen.

Bloomington Ferry, Minn.

Healthy bees preserve their hives free from filth, and are ready always to defend them against every enemy that approaches.

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Great Meeting of German Bee-Masters,
HELD AT DARMSTADT, SEPT. 8, 9, AND 10, 1868.

These meetings of bee-masters held periodically in one after another of the principal towns of Germany, show what a point bee-keeping has reached in that country, and are most interesting as well as advantageous in their results. The meeting, which was held this year at Darmstadt, the capital of the Grand Duchy of Hesse, was attended by a large number of the celebrities of German bee-keeping. Some well-known names, including Baron von Berlepsch, (who is suffering from a stroke of paralysis, but growing better,) are missed from the list, but still a meeting attended by such men as Dzierzon, Von Hruschka (the inventor of the centrifugal comb-emptying machine,) Vogel (introducer of the Egyptian bee to Germany,) Dathe, Koehler, Professor Leuckart, of Giessen, perhaps the first authority of the day on the natural history of the bee, a Greek Priest from Croatia, Marchesi Crivelli, the great reformer in Italian bee-keeping, from Milan, to say nothing of many others more or less known, from all parts of Germany, and several from France, could not fail to be interesting. Great facilities were also afforded by the fact that almost every railway company in Germany and Austria conveyed bee-keepers or other visitors to the meeting, as well as articles for exhibition, at fares generally 50 per cent. or more reduced.

The first day of the meeting was Sept. 8, and at half-past ten the President, His Excellency Herr von Berchthold, opened the proceedings, by welcoming the visitors in the name of H. R. H. the Grand Duke, who had placed his orangery and adjoining grounds at the disposal of the meeting, and addressed the assembly in a short speech, followed by two other addresses by the Mayors of Darmstadt and Bessungen.

The President then read out the rules for guiding the speakers, and the real business of the day was commenced by a speech by Professor Leuckart, enforcing first of all the necessity of learning theory as well as practice, in order to become a successful apiarian. He then proceeded to notice the points of similarity and difference in their habits between hive bees, wasps, ants, and humble bees, dwelling especially upon the extraordinary fertility of the queen bee.

The first subject upon the programme then came on for discussion. "1, What is the cause of the difference of size of queen bees? 2, Are the larger queens to be preferred to the small, and why? 3, Is it in the bee-master's power to insure the production of large queens?

These questions had been proposed by Dzierzon, who ascended the speaker's platform amidst a storm of applause. The substance of his remarks was: 1, That the difference in size is caused by difference in food during development, and depends, therefore, much upon whether the queens be bred during the time when there is abundance of pollen or not; pollen being, in fact, the element of their food, which is of most importance in this respect. 2, That although smaller queens are, often, at least, as fruitful as large ones, yet that the advantages of size in other respects are great, as, for instance, if the queen is to be caught, and especially because experience has shown that large queens are annually impregnated in a much shorter time than small ones; a difference sometimes, especially in cool weather, being observed of ten days. The third question is answered mainly in the remarks on the first, merely adding that the fewer queens that are being bred at once by one stock, the larger they are likely to be.

Dr. Pollmann, from Bonn, thought that the difference in size depended much on the age of the grubs in the case of artificially-bred queens, for that a grub which had been fed four to five days with common food, could not develop to the same size as if it had all along enjoyed royal food; and also on the fact that the egg naturally destined to become a queen is kept warmer at the first than other eggs. As every bee keeper will allow, large queens must be stronger than small ones, and to produce large ones we must always take care to commence with the egg at as early a stage as possible.

The second subject then came in order. "What is the result of all that has appeared in the *Bienenzeitung* during the last year upon foulbrood?"

This question had been proposed by Baron von Berlepsch, and, owing probably to his absence, the discussion assumed a somewhat desultory character. The substance, however, was much as follows: Dr. Preuss, a scientific microscopist of some authority, and an experienced bee-keeper, and Professor Leuckart, unhesitatingly attribute the worst kind of foulbrood to the presence of a microscopic fungus, similar, probably, to the one affecting the silkworm in North Italy. It was also remarked that foulbrood had much increased since the introduction of the Italian bee. The fungoid theory was also supported by some of the non-scientific bee-masters present, as affording a satisfactory explanation of many of the details connected with foulbrood.

Professor Leuckart thought it probable that the eggs (but, of course, only in the worst case) contained already the germs of the disease, an opinion which was opposed by those who alleged cases where they had saved the queens of condemned stocks, which had afterward always produced a healthy succession.

Upon the question how to deal with foulbrood, the opinion was almost general, that the stocks, some said the hives, too, must be destroyed. Others, again, and amongst them no mean authorities, maintained that they had cured foul brood by a process recommended by the Rev. Mr. Schieberle, of Moravia, at the meeting of German bee-masters held at Brünn, in September, 1865.* It seemed also probable, that in many cases foul brood arose from feeding bees with the impure honey imported from Havana and other places. The next question on the programme was—

"Whether foulbrood is a result of using hives with moveable combs, and not rather of imprudence when giving them drink in winter?" Unfortunately Mr. Kleine, whose question this was, was detained at home by domestic affliction; but in his stead Mr. Dzierzon remarked, that though, doubtless, in the hands of inexperienced and incompetent bee-keepers, the system of moveable combs had its dangers, yet, as a matter of fact, it was the easiest, if not the only means of discovering foulbrood and overcoming it. He could not understand the meaning of the second half of the question, and had no idea what could be passing in Mr. Kleine's mind to make him connect foulbrood with giving bees drink in winter.

Dr. Busch remarksd that possibly Mr. Kleine had formed his opinion from some scientific articles which had appeared in the Hanoverian *Bee Journal*, of which he is the editor, A Mr. Lambrecht had there made known the results of various chemical investigations, which had induced him to attribute foulbrood to the bees feeding upon pollen which had been wetted and in consequence had fermented.

The next question discussed concerned some details in the construction of hives (first introduced by Dzierzon) with moveable combs, and since used with but slight modifications throughout Germany. We may pass this by as having little interest for English bee-keepers.

After this followed the question; "Whether there are localities so absolutely unfitted for keeping bees that, in spite of all the experience and pains of the bee master, the best stocks, if moved thither, die off in a short time?"

The only speaker to this question proved that bee-keeping might be impossible in some localities owing to neighbors poisoning the bees. After keeping them successfully for forty years, he had, owing to the diabolical behavior of a neighboring manufacturer, lost in four years the whole of his bees, above $500 in value.

This led naturally to the question next in order, only interesting to Germany, as to the desirability of some laws as to bee-keeping.

After this Mr. Dzierzon spoke to one of his own suggesting—1st, "At what age do young bees first leave the hive and first gather honey? 2nd, Would it be advisable, without reference to wintering, to hinder the breeding of bees which cannot gather any honey in the current season?"

Mr. Dzierzon remarked that he had been induced to suggest this question in consequence of statements in Baron von Berlepsch's new edition of his bee book, in which it is stated that young bees begin first to gather honey in about thirty-five days; and that, consequently, it is advisable to prevent the increase of brood from about thirty-five days before the end of the honey season. Dzierzon believes that a young bee may leave the hive when three days old, or remain at home for as many months, so that no precise number of days can be given. If there are plenty of workers, young bees would remain longer at home; if there were few old bees, as when a hive has been moved, the young bees would gather sooner. This he could assert from experience. And the second suggestion was grounded upon a mistake, for the activity of bees depends very much upon the amount of brood. If, therefore, for the last thirty-five days they had but little or no brood, they would gather comparatively less honey.

Mr. Vogel had seen young bees, after careful observation, come out of their hives when six or seven days old, but only in isolated cases. As a rule the eighth or ninth day would be the earliest, and dependent also upon circumstances of temperature, wind, strength of the stock, &c. Young bees do not gather honey till sixteen days old, as is proved by the fact that they starve under that age, if left in a hive without honey or older workers. He agrees, therefore, on the whole with von Berlepsch as regards the first part of the question. As regards the second half, Dzierzon has not understood von Berlepsch, who does not say that one should not suffer *any* brood after a certain time, but that one should not suffer *unnecessary* brood, a mistake often made by beginners. And von Berlepsch's remarks are intended for places with very short honey harvests.

Mr. Köhler agreed with the last speaker, and remarked in addition, that the question how old the bee is when she first leaves the hive, had a very important bearing upon the question of uniting weak stocks for the winter, an operation which he thought was usually undertaken too late in the year. It should be done some time before, and not after, the end of the honey harvest.

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*We shall give a description of Mr. Schieberle's mode of curing foul brood in an early number.—Ed.

The next question on the list was, "Whether it be possible to hinder drone brood in hives with moveable combs, without having recourse to the old method of cutting out drone combs?"

Mr. Dathe was of opinion that it was better not to let the bees build drone cells, by filling up any empty space in the breeding-room of the hive with worker comb so soon as the bees begin drone cells. To suffer bees to build drone combs, and then to cut them out, involves a great waste of honey and a great loss of time for the bees, who build drone cells over and over again. By filling up the gaps, we should probably have young bees in the same space where, but for this, we should still be cutting out drone comb. Further, the bee-keeper saves himself the time and trouble he would otherwise necessarily have to devote to examining his hives and cutting out the drone cells. Of course in the space devoted to honey the bees may build as much drone comb as they please. The speaker had for eight years allowed no drone brood where he did not wish it, and this without any cutting-out. For this purpose it is necessary, 1, That there should be a division between the brood room and honey room, so long as the bees wish to build drone cells. 2, The bees must not be allowed to build in the breeding space after they cease to build worker cells. 3, In spite of all care, some drone cells are sometimes built in the breeding space. These should be at once removed to the honey division, using in fact for this part of the hive all the drone cells one can bring together.

The speaker then added: 1, That worker comb should never be destroyed, but either kept for feeding the bees if necessary, or, 2, Emptied by means of the centrifugal machine, and the empty comb used again. 4, Every means possible should be employed to secure a good store of worker comb from artificial swarms, late swarms, &c., and others which cannot be wintered. 4, We can compel any hive to build worker comb by reducing it to the condition of a swarm, *i. e.* by taking out nearly all the combs. 5, We may take out all perfect combs from a hive with a young queen; the bees will then build worker cells. 6, and lastly, When compelled we may use artificial comb foundations. These conclusions were supported by Messrs. Hopf and Huber. The latter also suggested that it would often be a good plan to remove the old queen with the drone combs in order that the bees having then a young queen might build worker cells; but it should not be forgotten that till the young queen is ready to lay, only drone cells would be built if the bees were allowed access to empty breeding space.

The proceedings of the first day were then concluded with a few words from the President, and the appointment of judges for articles exhibited.

Honey is a favorite food and medicine with the Bedouins in Northern Arabia.

[For the American Bee Journal.]

Practical Bee-Culture.

Practically considered bee-culture is something more than the mass of persons who own a few hives each think it is; for there are comparatively few that understand the laws that govern breeding and swarming, or the general economy of the hive. Success in bee-keeping depends greatly on the condition in which the bees are in the fall, and how they are wintered. In order to know their condition it is necessary that all the stocks should undergo a thorough examination, to ascertain, first, whether the swarm has a good queen; secondly, whether it has sufficient population to form a dense cluster, say from five to seven pounds of bees; and, thirdly, whether it has at least twenty-five pounds of honey and pollen; for honey is to the bee what money is to the business man, in common with others.

Wintering bees in special repositories is attended with considerable trouble and expense, unless the right kind of cellar is at command; and then, here in Iowa, the spring of the year is so cold and blustering that, frequently, it is difficult to get a day that is calm, and clear, and warm enough to enable a fallen bee to rise from the ground again and return to its hive. In this climate there are so many changes of weather that it is extremely difficult to keep bees sufficiently protected from the cold, and have them so ventilated in warm spells as to keep them reposing quietly in their hives. Now in these winter quarters their confinement is frequently protracted to four or even five months, during which lapse of time their abdomens become very much distended; they become restless, and will discharge their excrement in the hive and about the entrance. These facts lead us to inquire how bees can be wintered on their summer stands. Mr. Langstroth has published a plan, which I think is well suited to the climate in which he lives; but in the western and northwestern States, it would not afford sufficient protection to bees in his present form of hives. Mr. Langstroth has done more for the advancement ot the science of bee-culture than any other man in the United States, and deserves to be held in grateful remembrance by every person who has any love for the interesting and profitable insects. But still I feel constrained to say that the shallow form of hive is not a good one for outdoor wintering. I use his hive in three different forms; but prefer one that contains nine frames, and is thirteen inches and a half square, by ten inches deep; and on top of these nine more frames of the same size, placed three-eighths of an inch above the first set; and over these a crownboard on which eight boxes are placed, four upon four; with a summer entrance at the top of the second set of frames, just under the crownboard. This entrance should be closed at the end of the honey season. My reason for preferring this form of hive, or rather for discarding the shallow form, is, that in the latter there is a great waste of animal heat; whereas in the former this heat is so concentrated that the bees on the lower range of combs warm the upper set. The lower frames in winter contain a comparatively small portion of their winter stores, affording the bees abundant room to cluster. The heat arising from the bees below enables them to ascend with safety to their stores above, when wintered in the open air. Besides these advantages, the same amount of bees can rear one-third more brood than in the shallow one story form of hive. Now this does not injure Mr. Langstroth's hive, for no man can make a bee hive that is worth the lumber required to make it, unless he uses the principle that *he* has patented. Nor does Mr. Langstroth pretend that a better *form* of hive cannot be got up.

I have tried the clamp, and the cellar, and out door wintering; and the above described hive, for out door wintering, has worked out the most satisfactory results, in getting through the winter cleaner and with fewer dead bees, and in better condition than in any other hive. Now I never like to spend much time in puffing my own inventions, but would simply suggest to other bee-keepers the propriety of trying the same experiment for themselves. As this has been the poorest season ever known in the West, of course unless we feed bountifully in the latter part of winter and early spring, there will be large amounts of bees lost.

There are other things indispensably necessary to be done, in order to succeed at bee-culture. It is important to adopt the nucleus system, for the reason that the parent stock should not be left to raise a queen, for the simple reason that if they start a queen from an egg just deposited in the cell, it requires sixteen days before she emerges from the cell, and at least ten days more before she begins to lay eggs, and will lay only a few for several days. Then it requires twenty-one days for these to emerge from their cells, and the young bees must be at least nineteen days old before they join in gathering honey and pollen. Thus sixty-six days pass away before these workers take the place of those that passed away during the period to supply the present hive with a fertile queen. The parent hive meantime becomes destitute of brood, and the populatian so reduced that they cannot store up surplus honey, or can do so only occasionally. Providing a supply of fertile young queens from nuclei, to take the place of such as have become exhausted or superannuated, is essential to successful management.

All queens that are not prolific should be discarded before the honey season fairly sets in; and no colony of bees should be allowed to remain queenless a day longer than is absolutely unavoidable. And in order to obtain sealed queen cells, for the multiplication of stock and as a provision for contingencies, I am satisfied from actual experience, that it will pay well for all trouble and expense to keep reserve queens on hand all the time—thus enabling the bee-keeper to meet every emergency, whether queenlessness arise from superannuation, exhaustion, or accident.

James McMullen.

Oskaloosa, Iowa.

[For the American Bee Journal.]

Loss of Bees in Kentucky.

Mr. Editor:—In the January number of the Bee Journal, I saw an article taken from the Louisville *Democrat*, headed "Extraordinary Exodus of Honey Bees, &c.," which I am disposed to believe, without knowing anything of the particular case alluded to, to be composed of fact and fiction in about equal proportions. Mr. James Broil has probably experienced what hundreds, and perhaps thousands, of bee-keepers all over Kentucky, except perhaps the mountain districts, have experienced—namely, the loss of all their bees. But that his and his neighbors' bees all "lit out" suddenly and mysteriously, in one night, needs confirmation. He had probably not noticed his hives much for some time, and, when he did look at them, was much surprised to find them deserted; but where their inhabitants went he is not able to say.

The description of the condition of the bees for a "circuit of twenty-five miles" around the farm of Mr. Broil, after making the proper deductions for the extravagance of the writer, who was evidently trying to produce a little sensation, or was writing under the influence of one, will answer very well for three-fourths of the whole State of Kentucky. I am constantly hearing, from every direction, of great numbers of bee-keepers losing sometimes nearly all their bees. There is no doubt but next spring will show a fearful loss of bees in this State. Bee-keepers are puzzling their wits to find out the cause of this loss. It seems that Mr. Broil and his neighbors, according to the Louisville *Democrat*, think the "mildness of the weather up to so late a season" caused it. Others, having discovered that there is little or no pollen in the hives, think that is the cause. And so it goes, just as a man happens to notice something which he had never noticed before.

As I am rather a novice in bee-keeping, I shall not attempt to speak positively as to the cause of this loss of bees, though I am pretty well convinced that it can be accounted for on well known principles. Last spring, just after the peach trees bloomed, there came a very severe frost, or rather a succession of frosts, which destroyed a great part of the fruit blossoms. Then followed a long cold and wet spell. The queens stopped breeding, and the bees drove out the drones. Owing to the severe drouth the fall before, the white clover, which is the principal dependence for spring honey, was a failure; and there was very little bloom on the black locust, which precedes the clover. In fact, there was an entire failure of swarms and surplus honey, as the honey season, throughout the spring and summer, was very poor. I think the queens bred less on this account, and consequently the stocks of bees were rather weaker than usual. I think, too, that the queens must have stopped breeding earlier in the fall. Late in the fall the weather was mild, and the fall pasturage for bees pretty good. Now the bees having no brood to feed, did not carry in any pollen of consequence, and were able to lay up some stores of honey—though not to the extent that one might be led to suppose by the article in the *Democrat.* But the bees that did this were *old bees.* They soon died of old age, and there being no young ones coming on to fill their places, the stocks became so weak that they perished and left the hives desolate.

I am confirmed in this opinion from the fact that I fed my bees to promote breeding, whenever they were not getting honey from the fields, and have sustained no such loss. Out of seventy-five or eighty stocks that I carried through the summer, I have lost only two, and they died from dysentery—which I attribute to feeding them with some poor honey that had begun to ferment.

I could give some other facts, tending to support the view which I have presented, but fear I shall make this communication too long

D. Burbank.

Lexington, Ky., January 14, 1869.

[For the American Bee Journal.]

What I Will Do.

I will give FIFTY DOLLARS for a stock of Italian bees—the progeny of a pure queen that mated with a drone produced by a pure queen that mated with a common drone—in which every bee, native there, *has* three yellow bands.

On the other hand, I will give FIFTY DOLLARS for a stock of Italian bees—the progeny of a pure queen that mated with a drone produced by a pure queen that mated with a *pure* drone—in which there can be found a single bee, native there, *has not* three yellow bands.

In other words, I would say that a pure queen mating with a *common* drone will never produce drones *entirely pure*—they will have a dash of black blood; and a queen mating with such drones, I care not how pure she may be, will never produce a progeny of *three-banded bees.* Some will have three bands, while some will have only two, and some only one. Every bee, however, will be marked with one, two, or three bands. There will be none entirely black, as in a hybred stock. On the other hand, a pure queen mating with a drone produced by a pure queen that mated with a *pure* drone, will *always* produce *three-banded bees.*

Gentlemen bee-keepers, these are facts; make out of them what you like.

J. H. Thomas.

Brooklin, Ontario.

Distributed over the wide pastures of the Ukraine, every peasant has his store of hives, which frequently, in their harvests, realize more largely than their crops of grain—multitudes of that peasantry computing as important items in the estimate of their wealth, the number of their bee hives, which often exceed five hundred to the individual possessor.

Bees make their hives in all the crevices of rocks in Hedscha, finding everywhere aromatic plants and flowers. At Taif, bees yield most excellent honey, and the honey at Mecca is exquisite.

[For the American Bee Journal.]

The Bee Disease.

Mr. Editor:—"That bee disease" has swept over this part of the country, and destroyed nearly all the bees. I had fifteen stands of the black bee. They commenced dying off very rapidly. I became satisfied that it was the fault of their food; although my Italians did not appear to be affected by the disease at all, and in two "old" stands of black bees in Brazier patent hives, which contained much stores from the season before in the large brooding chamber, there were only about one-fourth as many dead bees as in the rest. I noticed also that young stocks, which had all new stores, died much faster than old ones that had some old stores remaining.

I watched the movements of mine till ten of the fifteen stands were dead, and three of the remaining five were nearly so—some of them reduced to not more than a quart of bees in a hive. I commenced with these, and removed all their stores that I could, and fed them with a feed made of crushed sugar dissolved, adding one pint of West India honey to each half gallon of dissolved sugar, and boiling down to the consistence of honey, skimming it well as it boiled. Thus I fed them all the time, kept plenty of rye flour constantly by them, and put a handful of salt in each hive.

The result was that they stopped dying; and my weak stands survived, with not more than a quart of bees in a stand. But they appear to be in a healthy condition, and some of them have commenced to rear brood—stimulated, probably, by the feed.

This is my experience with "that bee disease." There was none of my stocks that died but had plenty of honey and pollen left; and that was the case also with most of those that died within my knowledge. I give this for what it is worth.

I do not pretend to say that the *salt* had anything to do with the arrest of the disease, though I think it may have had. The bees appeared to be fond of it when first put in.

I find on examining my Italians to-day that there are some more dead bees under each stand than is usual at this time of year. It may be that they are taking the same disease. I have not fed them any as yet.

B. Puckett.

Winchester, Ind.

Wild bees are sometimes exceedingly pleasant to capture, for many of them emit the most agreeable scents; some the pungent and refreshing fragrance of lemons; others the rich odor of the sweet-scented rose; and some a powerful perfume of balcumic fragrance and rigorous intensity. These, however, have their set-off in others which yield a most offensive smell, in comparison with which that of garlic is pleasant, and assafœtida a nosegay. These odors must have some purpose in their economy, but what it may be has not been ascertained.—Shuckard.

[For the American Bee Journal.]

Singular Disease of Bees. Its Cure.

I fancy the following extract from an article on "The Diseases of Bees," which I wrote some time since for the *London Journal of Horticulture*, may throw some light on the singular disease described by C. E. Thorne, in page 120, volume 4, of the AMERICAN BEE JOURNAL:

"DROPSY (?).—During the winter of 1861-2, I lost three stocks from what at the time I called, and believed to be dysentery, but which I am now disposed to consider a malady heretofore undescribed by apiarians, and which may perhaps be appropriately designated 'dropsy,' to which disease it bears indeed no inconsiderable resemblance. The symptoms are great enlargement of the abdomen, which becomes so distended from a watery fluid that the unfortunate bee is perfectly unable to fly, in which state it either betakes itself to the top of the hive, or rests on the floor-board, where, if the weather be cold, it dies, or whence, if the weather be warm, it drops on the ground and crawls about until it expires. The natural functions appear to be entirely suspended, and if the abdomen be forcibly compressed, a rupture of the membranes takes place, attended by a flow of its watery contents, which emit a sour and disagreeable odor. Contrary to what Dzierzon remarks in the case of dysentery, the queen enjoys no immunity from this disease. When she is attacked she becomes incapable of oviposition, whilst her abdomen swells to a remarkable size. After some days have elapsed, she loses her hold on the combs and drops on the floor-board, where surrounded by a number of her subjects, she may yet linger many hours before death relieves her from her sufferings. A friend of mine, who is an excellent naturalist, undertook to preserve and set up a very handsome Ligurian (Italian) queen that perished in this way, and he informed me that, on opening her abdomen, a good teaspoonful of fluid gushed out! I had also a young Italian queen which, about the time I expected her to commence egg-laying, increased so rapidly in size that I became not a little proud of her as the largest queen I ever saw. Alas! for the futility of human hopes! My magnificent queen turned out to be not *enceinte*, but diseased, and perished without ever having laid an egg.

"I had two other instances of this malady about the same time, in which the queens escaped, and I could almost fancy their breeding powers were actually stimulated by the presence of the disease, since their fecundity not only overtook the extraordinary mortality which constantly prevailed, but theirs became two of the strongest stocks in my apiary. It was, however, most pitiable to see, all through the spring and during the finest summer weather, the ground in front of the hives perpetually covered with hundreds of disabled and dying bees, which crawled about in all directions, setting up at intervals a feeble vibration of their wings, as if in faint imitation of the hovering crowd of joyous laborers overhead, in whose delightful toil they were never again to participate.

"It will readily be believed that I exhausted my ingenuity, and sought for information from all quarters, in the hope of effecting a cure. I even obtained the advice of the great Dzierzon, who was, however, unable to suggest a remedy, but opined that the disease I described was a 'kind of dysentery.' As a remedial measure, I first tried shifting the bees and their combs into clean hives, but no mitigation of the virulence of the disease was the result. I next took away all their combs and brood, which I gave to other bees, and compelled those I had thus rendered destitute to commence their world afresh in an unfurnished habitation; but all to no purpose. New combs were built and profusely bred in, but still the mortality continued. One thing, however, became evident, viz: that the infection, whatever it might be, was certainly confined to the bees themselves, since neither their combs nor their brood communicated it to those healthy stocks to which they had been transferred. It therefore occurred to me, that if I could succeed in eliminating every diseased bee, retaining only those which were perfectly healthy, I might succeed in banishing the disease altogether; and as this really turned out to be a 'perfect cure,' I will fully describe the means by which it was effected. Selecting a fine day, and spreading a cloth on the ground, I looked over the combs until I discovered the queen, which I imprisoned in a queen cage, and then set the hive on the ground, putting an empty one in its place. I next took out the combs one by one, brushing off every bee on to the cloth, placing the combs into the previously empty hive; and completed the operation by putting on the crown-board and introducing the queen at the top. In this way I effected the end I had in view, which was, that no adult bee should be permitted to enter the new hive, that was unable to rise from the ground and gain the entrance by means of its wings. A number of infant bees, as yet unable to fly, were unquestionably lost; but I spared no pains in rescuing as many of these as possible, and had the satisfaction of finding that I had at length affected a radical cure."

T. W. WOODBURY.
("A Devonshire Beekeeper")

MOUNT RADFORD, EXETER, ENG. December 21, 1868.

The wild bees appear to be of annual, or of even more restricted duration merely. Of this, however, we have no certainty. The conclusion is derived chiefly from the circumstance that, as they progressively come forth with the growth of the year, they, when first appearing, are in fine and unsoiled condition. But some species of humble-bees are reputed to have a longer life than of one year.—SHUCKARD.

The quantity of pollen that is collected in the course of a season, by the diligence of the bees of a colony, has been estimated at from sixty to seventy pounds.—SCHUCKARD.

[For the American Bee Journal.]

The Bee Disease, and its Probable Cause.

A similar disease to that spoken of by Mr. Thorne and many other beekeepers, occurred in France in the rainy springs of 1853 and 1854. Many colonies died of it and it was a true epidemical malady in that and the neighboring countries. I translate for the benefit of the readers of the BEE JOURNAL, the following description of the disease from the "*Laws d'Apiculture*" of M. H. Hamet.

CONSTIPATION.

"This disease is the result of a sudden and great fall of temperature, while the abdomen of bees is filled with fæces. In the spring of rainy years it sometimes happens, in March or April, that the temperature falls in three or four hours from 60° to 20° F., with a piercing wind. The bees in feeble ruchees (colonies) then consume much honey, to keep up the necessary heat within their hives. But though having gorged themselves, they cannot attain their aim, and become constipated.* Under a higher temperature, they would have got rid of it with dysentery; but under a low temperature the excrements thicken within their bodies and can no longer be discharged. Some bees try to fly, but mostly drop near the hive. Some die on the bottom-board; and some even between the frames.

"This constipation is produced likewise by honey gathered in the fall, which has not been sealed. Absorbing moisture in the wet season, it decomposes and at times becomes so thin as to run out of the cells. It is well to remove the combs containing such honey.

"The bees attacked by this disease do not accept any food. Strong and rich colonies, when alone, rarely get the disease. I say, when alone, because constipation, like foulbrood, becomes epidemic when not controlled against. It can be stopped by isolating the diseased ruchees, and feeding the remainder of the healthy colonies with substantial warm food, such as good honey mixed with thick sugar syrup.

"Thick-sided warm hives prevent the spontaneity of the disease. In France, at the beginning of spring and at the close of summer, almost every ruchee loses some bees from the malady; but their bodies being promptly removed, have not time to exhale the mischievous miasms which make the disease contageous." Thus far M. Hamet.

All the reports of the bees made to the BEE JOURNAL, with one exception, show that the malady began after the first cold days of September. Mr. Cunningham alone states that in Kentucky it began about the 20th of August. But from the article in the *Louisville Democrat* it would seem that it was not noticed in that county before November. I beg Mr. Cunningham to refresh his recollection, because if it be certain that the disease appeared in August, consequently before cold weather, we shall have to look for the cause in something else than the cold spell which occurred here so suddenly, on the 10th of September.

I advise all beekeepers whose apiaries suffered from this disease, to spade up the ground in front of the hives, so as to bury the dead bees that fall there; or to remove their living colonies to some other localitiy, if practicable, and feed them with good white sugar, after removing all the dead bees that may be found in the cells—keeping a sharp eye on the colonies, until time and young bees have re-invigorated them.

CH. DADANT.

HAMILTON, ILLS.

ERRATA in my article on page 147 of the February number of the BEE JOURNAL. First column, line 13, for *ceased* read *began;* and second column, line 34, for *three* read *their*.

C. D.

[For the American Bee Journal.]

Bees Disappearing.

The mysterious disappearing of the bees, the past season, presents a question of great interest for solution, and one well worthy of careful investigation. With this view I call the attention of beekeepers thereto, and offer what I conceive to be the most rational explanation. There are two ways to account for it. The theory to which I am inclined is that, in consequence of the honey dearth the past season, bees were compelled to resort to sources of supply not generally frequented by them; and that the honey gathered from these sources was poisonous to them.

The reasons that lead me to this conclusion are that, during the latter part of August and beginning of September, my bees were gathering honey from some source that killed hundreds of them. They could be seen crawling away from the hive, on the ground; and on the alighting-board; so weak that they actually struggled and reeled as if they were intoxicated; and all that were so effected, died. This lasted for a week or two; and as soon as that source of honey failed, they ceased to die. It was said to be a species of milkweed, but I do not know what it was. About the same time the year before my bees suffered some, but nothing at all compared to what they suffered last fall.

Now it seems to me that if the honey was so poisonous as to kill bees when only carrying it home, that it certainly would kill them when eating it. And this is just what seems to be true, as all that die, leave plenty of honey, and some as much as thirty and even forty pounds. During the latter part of the season they gathered nearly all they have as winter stores; and it is only since winter set in, and they have commenced to consume this poisonous honey, that the effect is apparant. And as every sick bee naturally crawls out of the hive to die, it accounts for the gradual and consequently un-noticed disappearing of the bees, one or two at a time, until all were gone, and the bee-man was left to guess at the cause of his bees leaving so mysteriously, with plenty of honey to winter on still in the hive.

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*The Italian bees, keeping themselves and their brood more compact, are less liable to contract the disease, at least before it becomes epidemic.

The other theory supposes that the queens ceased to lay eggs in consequence of the scarcity of honey, and that thereby the colonies were so reduced in numbers as to be unable to generate heat enough to sustain life. In my own apiary I know that this was not the fact; for my own bees not only produced plenty of workers but drones also, through July and August; and I even thought of caging the queens to stop breeding. Then, too, those hives that contain large quantities of honey and no bees, must certainly have gathered it; and experience teaches me that bees breed freely when storing honey.

As the honey crop is a failure all over the country, and even in Europe, we can by investigation, learn which of these theories is correct, for the poisonous honey would not be found over all this extent of country. Yet the influence of the honey famine would affect the bees in some way everywhere. It is to be hoped that bee-keepers will unite in this work, and help to explain the mystery.

CHARLESTON, ILLS. H. C. BARNARD.

[For the American Bee Journal]

1. I think, with many apiculturists, that the impregnation of the egg is independent of the will of the queen. As Mr. Bickford, in the BEE JOURNAL of February, 1868, page 147, has advanced the theory that the impregnation of the egg depends on the depth of the cell, I desire to know if friend Marvin observed whether the drone cells, spoken of in the January number of the BEE JOURNAL, 1869, page 140, were reduced in depth by the bees.

2. I invite naturalists to examine with the microscope eggs dropped by the queen, while out of the hive, in the height of the breeding season, in order to ascertain whether they contain spermatozoids.

3. I do not think that the queen lays in queen cells, for she fears to give birth to rivals. Did any bee-keeper ever see a queen laying eggs in old or newly constructed queen cells?

4. I think that, in a normal condition, the bees do not build drone cells, unless compelled by want of room. The drone and store cells being constructed more rapidly than the worker cells; the bees build them in order to be in advance of the honey gathered every day.

5. I think that the queen finds less enjoyment while laying drone than in worker cells; and that she lays in drone cells only when compelled by want of room, or when hurried by the desire of laying, in the height of the breeding season.

I wish some of our bee masters would give us their views on these topics.

CH. DADANT.

HAMILTON, ILLS., Jan. 6, 1869.

* * *

The inhabitants of Frebizonde paid their tribute to the Roman Empire in wax; but the honey produced there was of a deleterious quality.

[For the American Bee Journal.]

Brooding Temperature.

MR. EDITOR:—My object in this communication is to call the attention of your many readers to one thing that should be sought after, by all who may be engaged in that most delightful occupation—"bee-culture;" namely, the best means of getting at the degree of heat required by the "law of nature," with the fewest bees demanded for the successful nourishing of the young bees and the making of wax.

All must admit that much is lost by the bees being unavoidably kept in the hive, to maintain the required temperature, when their services would greatly increase their wealth, if many of those thus detained could be added to the transportation company, to which they would gladly attach themselves, were it not for the law of instinctive duty which impels them to keep up a temperature of 80° F. in their hive.

This subject, with one other, has had my special attention for seventeen years, with a very satisfactory result. I see subjects of much less importance discussed at length, and my desire for the success of the business prompts me to call attention to it; and if desired I will give the results of my own experience.

The December and January numbers of the BEE JOURNAL are at hand, and I have perused them with much interest. I will endeavor to add some to your list of readers

We have a fine field for the bee business in this locality. Our country was almost depopulated of bees during the war. In the spring of 1865, there were not thirty colonies of domesticated bees in Jackson county; but the woods were full of wild bees. Many persons started with one colony, and that taken from some hollow tree in the forest. I know men who started on three colonies, and in three years some had fifty, some sixty, and some one hundred colonies.

The past season was the worst in this locality for twenty years, as reported by our oldest apiarians. My experience dates back only seventeen years, though I have been in this locality for thirty years. I am well convinced in my own mind that any amount of capital invested here in bees will treble itself in one year, with proper attention.

My object in the culture of bees thus far, has been experimenting, without any regard for increase or gain; but from this out I am going for the profits.

JAMES D. MEADOR.

INDEPENDENCE, MO.

* * *

It is a singular fact wax is more rapidly and largely made by feeding the bees with dissolved sugar, than from the honey they collect themselves—the sugar thus evidently containing more of the wax-producing elements.—SCHUCKARD.

* * *

If several days of rainy weather should succeed a swarm's coming off, they may die of famine if timely relief of honey is not given to them.—WILDMAN.

[For the American Bee Journal.]

The Season, Feeding, and Wintering.

Mr. Editor:—The summer of 1868 was the poorest for bees in all this immediate section, that any owner of bees remembers. Those who apply common sense to matters petaining to bees, as well as to other transactions of life, find no difficulty in accounting for the fact in the peculiarity of the season. The spring and early part of summer was exceedingly wet, and afterwards proportionately dry until late, and the bees stored no honey. I had no swarm and did not hear of more than half a dozen swarms of black bees in all the country around. There were last spring only two persons who had Italian bees, and those did not all send off swarms. The result of the whole matter is that, at this date, more than half of the bees in the country are already dead, with a prospect that more than half the remainder will die before spring. All around you hear people wondering what is the matter with the bees. I answer, starvation. But, says one, such a person's bees are all dead, and they left honey. Now occasionally a colony may have perished from some other cause, and left honey enough to have wintered them. But I apprehend that, in a majority of cases, the honey left is small in amount and in such remote corners of the hive as to have been unattainable. One gentleman had about thirty colonies of Italian bees, and about an equal number of natives. About the first of October, he overhauled all of his bees, and took the stores from most of his natives, leaving them to perish, and strengthened his Italians. Another, having some fifty or more colonies, mostly Italians, fed them freely of sugar syrup in the fall.

I thought that if I had expected any of mine to live until spring, I must supply them with something to live on. During the last half of October and first of November, I gave them an average of about ten pounds to the colony of good white sugar made into syrup. Having no house or dry cellar of my own, I took a part of mine to a neighbor, who had a dry cellar; and the others I protected on their summer stands. Yesterday was warm and I set them all free, so that they could fly, and all appear active and in good health, with very few dead bees about them.

I have heard of only two reliable instances where there appeared to be any disease in bees, and that I think was dysentery.

Beekeeping is still in its rudest state here, and consequently all the old superstitions about bees, with lucky and unlucky persons, places, and seasnos, are rampant. The latest thing in that line I have heard advanced a few days since, by an old lady. It was new to me at least, and was this—that this was the locust year, and that the bees always all died off the winter after the seventeen-year locusts made their appearance. Now, I always look for some connection between the cause alleged and the effect produced. I can see none here, and reject the figment. But it is not more unreasonable or improbable than many other stories which are credited by persons otherwise sensible. There is a great deal of such rubbish to be cleared away before bee-keeping is placed on a level with the other industrial pursuits of the country, and made sure and reliable as well as pleasing and profitable.

What is settled conclusively about the alsike clover, as to its adaptability to our soil and climate, and its value for bee-pasturage particularly, and also for forage and pasture? It has been long enough introduced, and enough talked about, for something definite to be known. Whatever is known, however, should be published truthfully, so that, if it has any value, people may be encouraged to cultivate it; and if it is worthless, as I strongly suspect, they may be saved from the wiles of sharpers.* But I have already lengthened out this scrawl too much for the first, if it has any value.

John C. Helm.

Maurice, Ind.

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*A gentleman in Columbia County, New York, writes that he considers alsike clover the best bee-pasturage in the world. He has fourteen acres of it; and intends sowing more.—Ed.

[For the American Bee Journal.]

Some time last year I read the announcement of "Nature's Bee Book," a valuable manual on bees, published by *Professor* W. Flanders.

I wrote for the book, sending twenty-five cents, and received in return a pamphlet of 64 small pages containing chiefly the praises of the Flanders' Bee Hive, Flanders' Bee Charm, Golden Queens, &c., &c. The small remainder of the book was a shapeless mass of compilations, intermixed with some qneer notions about bees, written in a euphuistic style.

Of course, as the process of selling *a circular* so dear, was little encouraging to the purchaser, I did not send any money for the hive, or the bee charm, or the golden queens—concluding to expose the deception in the Bee Journal; but meantime the man was reported to be *dead.*

However, as he reappears to-day, *big and fat*, I write this to put beekeepers on their guard against sending even the smallest sum for the book, for they would be far from getting value for their small outlay.

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I have received Mr. E. Kretchmar's "Beekeeper's Gnide Book." Although I am not partial to hives with closed top frames, I consider the book as amply worth its price.

—

I am so pleased with the hive of Mr. Price, as described in the November number of the Bee Journal, that I will construct fifty such hives, this winter, for my own use.

You are in the right way, friend Price, in giving so good a hive without patenting it. I thank you, on behalf of the beekeeping community.

Ch. Dadant.

Hamilton, Ils., Jan. 6, 1869.

[For the American Bee Journal.]

Improved Method of Swarming.

Where bees are left to have their own way in swarming, it is found sometimes that one colony will throw off swarm after swarm, nearly swarming itself to death; while some of the families that came off are feeble and worthless. Then again, another colony, full of workers and rich in stores, and which should afford at least one good swarm, will do no such thing, but hang out and threaten, and yet make no decided movement. The following arrangement, it is said, will prove a remedy for this state of things. Suppose I have ten colonies, all numbered, as they should be. Number 1, on examination, is found to contain ten queens *in embryo*, and is therefore capable of supplying ten colonies, if the young queens are not destroyed. Number 1 inaugurates the movement and sends off a good strong swarm. Very well. Hive them, and give them their position. Now number 1 has lost half its numbers, and, for the present, its inhabitants are all in excited commotion, and they are now ready to receive new comers. Remove number 2 to a new stand, and place number 1 on the old stand of number 2. The workers of number 2 that are out in the fields, will, on their return, flock into number 1, and when the day closes number 1 is again strong in numbers and immediately concludes that it is best to send off another colony, and in about a week a second swarm will come off, hale and strong. Number 2 has lost enough of its numbers to make a swarm; it has indeed swarmed through number 1. It has a prolific queen and is rapidly augmenting its numbers every day, and will soon make up its loss. Meantime number 1 must be placed on the stand of number 3, and number 2 may be taken to the first stand occupied by number 1. Number 1 will be filled right up again as before, and in a day or two will send out another strong vigorous swarm, with a young queen. And thus the process may go on until ten swarms, all strong, have all come through number 1. This plan has been recommended, and is said to work well. It looks reasonable, and is worthy of trial.

P. R. Russell.

Bolton, Mass.

* * *

The senses evidently possessed by bees are sight, feeling, taste, and smell; but whether they hear we cannot know, although the antennæ have been supposed to be its organ, for the apparant responsiveness of these to loud and sudden sounds, may equally result from the agitations of the air which those sounds produce.—Shuckard.

* * *

No study, like natural history, pursued in a humble and docile spirit, so harmoniously elicits the religion of the soul, or so fitly prepares it to enter, by the pathway of the works of God, the august temple of His revealed word. —Schuckard.

[For the American Bee Journal.]

Candid Confessions.

To appease the wrath of Mr. Puckett, I suppose I shall have to write a confession, or, in other words, write a sort of preface to *my bee-book.*

When I was a great green boy, and was left one evening with others of my age, after exhausting all the fun and mischief we could think of, we caught the old tom-cat, and one was to hold him and another to but him on the head with the fist, merely to see *what effect it would have!* That disposition has never left us. If we remember rightly, about the first man we hit in the Bee Journal was Mr. Quinby; and he was hit on purpose to see what effect it would have, and not for any malice or ill-will. Then, knowing what was said against Mr. Langstroth's hive, its defects, &c., we hit him, and hit him hard. The object was to draw out both sides of the question as much as possible; and that we have succeeded in doing to a considerable extent. But, in order to keep up the *awful muss*, we have had to fight on both sides of the question.

Now, friend Puckett, you are considerably gritty; but we could take your side of the question, and beat you, all hollow. At least that is our opinion. In one of your articles you find considerable fault, because we did not explain everything as we went along. Well, if we had written barely one article, and no more, your fault-finding would have been just. But, when we commenced writing for the Bee Journal, our intention was and still is, to keep on writing our experience in beekeeping. Furthermore, our object in said article was to draw out Mr. Alley again. But, for some reason, he saw fit to pitch into us in private, instead of doing it through the Bee Journal. *Enough, however, on this head at present.*

Of all the perplexing questions for a new beginner to settle, on commencing bee-keeping, this is probably the worst one—whose patent hive shall I purchase; or whose form of hive is the best? Every patent hive man says that his hive is the very best—no other can begin to compare with it, &c., &c. Right here I will state that the only money we ever invested in any patent hive, was two dollars in T. B. Miners's Great Equilateral, Cross-bar, Cotton-cloth Humbug. Always having been a prominent beekeeper, wherever we have resided, we have had any number of hives given us on trial, &c. We have never been bribed to recommend any one's hive, and probably never shall be. On the other hand, we have never asked for any other man's money, in payment for any information or advice we could give. So that you can safely say, that Gallup has no design on your pockets—an independent candidate in the fullest sense of the word! Furthermore, you may call Gallup the new beginner's friend, and you will hit right every time. Just such a blunt, out-spoken, putty-head is wanted to write for the Bee Journal.

Here comes one of our patent hive gentry.

He goes on extolling the merits of *his* hive and running down the Langstroth hive, calling the latter a shallow thing, a rabbit hutch, &c., &c. In fact he has a special spite against that hive in particular. He says Langstroth was not the inventor, obtained his patent under false pretences, &c.; and finally winds up by requesting Mr. Gallup to buy a right to his hive, and make his fortune. About this time Gallup is green and asks some simple questions about bees, and bee hives, &c.; but finally wakes up a little, scratches his head, and remarks:—"Now, Mister, look here, you say that Mr. Langstroth is not entitled to anything for the use of the movable frames; and if he is not, pray tell us what you are entitled to? That is what I would like to know. Your patent slides, patent springs, thumb-screws, slanting bottom-board, &c., &c., are a perfect nuisance on any hive." That is not merely Gallup's say so, but it will prove to be so, to any practical beekeeper, providing he will lay all prejudice or preconceived notions aside. Now I think that new beginners will understand me, when I say—Purchase the right of the movable frames from Mr. Langstroth, if you purchase from any one. Then, if on trial, you do not like *the form*, you can change it to some other form, until you get *a form that does suit you.* There is not, nor ever has been, any question in my mind about the form that Mr. Langstroth uses being well adapted to the climate in which he resides; but *we* must have at least ten inches depth of comb, *in our climate.* The new beginner will understand that he can use the Langstroth principle in almost any form of hive that his fancy may suggest; for it is not the *form of the hive* that is patented, but the frames and the adjustment. If you happen to think that you can obtain more honey without the honey-board, you can take off the honey-board and set the boxes directly on the frames; and then you have all the advantages that Mr. King claims for his American side-opener. But do not make a hive of the American form, even expecting to obtain as good results as you will from a hive of medium depth of comb. A six-inch depth of comb is one extreme, and a nineteen-inch depth of comb is the opposite. As I said in a previous article, a medium depth gives the best results.

Well, friend Puckett, you will probably say that this is not attending to your case. In fact I think you were barking up the wrong tree. I cannot see any squirrel there. But if you wish to enter into a friendly discussion on the merits and demerits of different forms of hives, Gallup is your man. We, I am satisfied, might get up something, under that head, really interesting to the new beginner. At all events, let us hear from you again, and keep good natured about it.

There is one thing more that we have to confess in this article. That is, no man can accuse us of ever hitting him in a private circular, or in any paper where we thought it would not meet the eye of the person hit. We always give a man a chance to defend himself. We claim no privileges that we are not willing to grant to others. It is by free, open discussion that we expect to get at facts.

There is one thing more. Mr. Langstroth has many and zealous friends, as well as many enemies; and what public man has not; but, in counting up, we do not think you could safely set us down on the side of his enemies.

We see, in the January number, that we have succeeded in raising the Professor from the dead.

ELISHA GALLUP.

OSAGE, IOWA.

[For the American Bee Journal.]

Drones from Young Queens.

I wish to make a statement of a fact with us, which, if followed to what would seem probable, will save many troubles in Italianizing.

The idea seems to prevail that young queens will not lay drone brood the first season.

We obtained a young Italian queen the 23d of May last, and from her raised young queens to supply twelve colonies.

In August, nearly all made preparations to swarm, the season being exceedingly favorable.

In all those colonies which did swarm, and in some which did not, drone brood was reared, although some of the queens were very young. The black drones were nearly if not quite all destroyed during a scarcity early in July.

This proves to me that the wants of the colony, and not the age of the queen, is a guide for depositing drone brood. Therefore, if a young Italian queen can be introduced in a full colony of black bees, before drone brood is produced, the young queen will supply the deficiency. This would give all the benefit of drones the first season, from which, with the Köhler process of fertilization, a large number of colonies might be Italianized. Swarming commences here about the middle of April. Queens of the previous season can be spared by the 10th of April; and young tested queens can be had before the 1st of May.

There are many places where preparations for swarming do not commence as early as these dates—certainly not as soon as the 10th of April. In our own case, we raised a second crop of queens to satisfy the place of the first, which produced hybrid stock. These last became purely impregnated.

Of course such a chance is rare, even here; but by taking advantage of the facts above stated, (if they prove to be facts elsewhere, and it is reasonable to think they will), anyone can Italianize in one season.

A. G. WILLEY.

MURFREESBORO, TENN., Jan. 11, 1869.

INSTINCT is a faculty whose clear comprehension and lucid definition seems impossible to our understanding. Its attributes are various, and its operations are always all but perfect. It is an almost unerring guide to the creature exercising it; and is as fully developed on its awakening as is, and with it, the perfect insect upon its transformation.—SHUCKARD.

[For the American Bee Journal.]

Facts and Questions.

MR. EDITOR:—Who can explain the problem why so many bees are dying in this section of country? Many of our beekeepers are losing large numbers of their stocks. The facts are these—in a majority of instances only one or two pints of *dead* bees are found, all told, both among the combs and on the bottom-board. If the condition of the hive is found in time, the queen and a dozen or two of the workers may be found *living*.

The next fact is, that, in a majority of cases, they leave from six to twenty pounds of honey—perhaps enough to carry a good swarm through the winter. Why have these swarms dwindled away to one pint, having both a living queen and ample stores for winter?

Is the honey *poisonous* to them, causing their death? Or did the failure of the honey crop, in the latter part of the season, stop the queen from breeding, and consequently cause a diminution of the stock, until there were not bees enough left to maintain a sufficient amount of animal heat to keep them from perishing, when the cold weather came on?

Have any of the old experienced beekeepers some other and better reason for the state of affairs? I find no satisfactory solution of it in any of our books. Who *can* answer? Who *will* answer? Who can tell us the remedy, and when and how to apply it?

If the thing was *poisonous*, how can the bees be saved so late in the season? If it was the failure of the honey that stopped the queen, or rather caused her to cease, from laying and the number of bees to be diminished, then do not Harbison, Thomas, and Gallup give us the remedy, when they tell us to *feed* during this time of scarcity, that breeding may be continued by the workers feeding and stimulating the queen? Why is her brood so limited at the coming on of winter, while possessed of ample stores for the winter at hand?

Or, lastly, if the queens have become barren—thus causing the failure, why should it be so extensive and general? Will the queen cease to lay eggs, if the bee-pasturage fails?

Is it a general thing, everywhere, that the bees are dying; or is it confined to certain localities? If *general*, or *local*, tell us why it is so, if you can; and name the remedy.

J. DAVIS.

CHARLESTON, ILLS.

The economy of nature is so perfect that wherever we can trace a difference, we may assume that a reason and a purpose exist for the variation. Thus we do not yet know why some species of bees have three sub-marginal cells to their wings, and others only two.

In Spain and Italy bees are largely cultivated; and in the former country many a parish priest, the religious monitor of an obscure hamlet, can count his five thousand hives.

[For the American Bee Journal.]

More of the Disease.

Last season the bees did little or nothing in swarming, and made no surplus honey, in a general way; and nearly all that was gathered had a peculiar, bitter, pungent taste, so that it would have been worthless for table use.

At this date (January 14, 1869) over one-half of the stocks are dead in my territory; and those that are still alive are, with few exceptions, not doing well. They commenced dying early in the fall, flying off never to return. On opening the hives after the bees were dead, we generally found plenty of honey, with a rather scant supply of pollen. The dead bees seem to be very full of a very offensive fluid-like matter.

What the end will be I know not, but think there will not be many stocks left. Those who have kept bees twenty-five years say they never knew bees do so. I would say that some few owners never had bees seemingly do better than this fall and winter; while those around them lost nearly all they had.

For myself, I shall stick to the business, believing the disease to be of an epidemical character; after which the keepers will reap a rich harvest. And to aid me in the undertaking, I send enclosed two dollars for that *invaluable* BEE JOURNAL, every number of which is worth the price to the person who has as many as twenty stocks of bees.

C. B. MOORE.

SARDINIA, OHIO.

[For the American Bee Journal.]

I should hardly know how to get along without the BEE JOURNAL, as I receive so much valuable information through it from your numerous correspondents, in all parts of the country. NOVICE's experience is so natural that it forcibly reminds me of some of my own ludicrous blunders when I first began beekeeping, ten years ago. Especially when I moved six stocks, which I had taken on shares, about twenty rods on the first of June, and in the evening found nearly a bushel of bees clustered in the shed I had taken them from. What to do with them I did not know. I had no BEE JOURNAL then to consult, nor any other work relating to bee-culture—though having heard of Quinby's book, I sent for it a few days later. Procuring a sheet and brushing the bees on it, I carried them to their hives, and spreading it out I let them select their own home. Of course a great many bees were lost, but as they were breeding rapidly, they soon recruited again, and in July following I got a few swarms.

Novice lives a little further north than I do, but I was ahead of him in early swarming last season, as I had two in May, one on the 10th, and the other on the 11th; and that too without feeding, to stimulate them to early breeding, if we except a little rye flour. I am sorry to say that those two swarms are the only ones I know of that collected stores enough to carry them through the winter.

D.L. KIRKPATRICK.

NEW PARIS, OHIO.

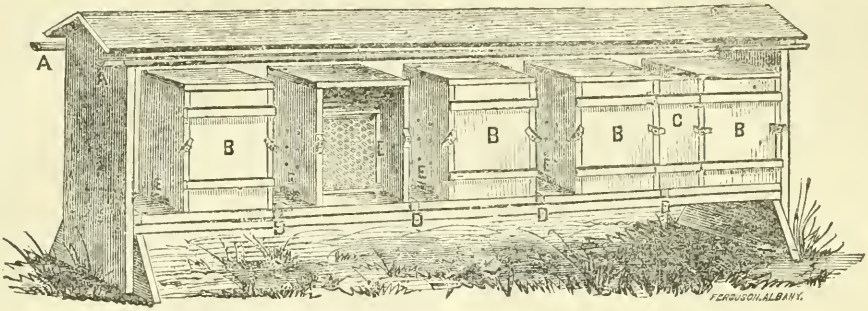

FIG. 3.

[For the American Bee Journal.]

The Eureka Hive.

The Eureka hive, in its simplest form, and perhaps its best, is constituted of six boards. Two boards 24 inches long and 22 inches wide form its front and back sides. One board 20 inches long and 22 inches wide forms its top. One board 23 inches long and 22 inches wide forms its bottom. These four are inch boards, nailed firmly together, as shown in the plate, with two shutters of half-inch stuff, 24 inches long and $18\frac{1}{2}$ inches wide, fitted in and buttoned, (B. B , fig. 3), form the body of the hive. For an entrance for the bees in front, and for ventilation in the rear of the hive, an aperture 2 inches by 8, is cut out at the bottom, as shown at F; and on the back side a piece of wire gauze is fastened for ventilation; and in front the piece F is introduced to properly contract the entrance. My other device may be introduced, to catch robbers or shut out drones, &c, Here we have the whole hive of about the capacity of 9,000 cubic inches. We now divide it into a central apartment, for the breeding and wintering the colony, and side and top chambers for the surplus honey boxes. The central apartment is composed of six movable comb frames, the top and bottom of each $\frac{7}{8}$ inch wide, the sides $\frac{3}{8}$ inch thick, framed into the top and bottom pieces, forming a square frame, even upon its four sides, standing sixteen inches high and $17\frac{1}{4}$ inches wide. That is, the top and bottom pieces are $17\frac{1}{4}$ inches long, and the side pieces 16 inches. I drive a nail (B., fig. 1,) into the under side of both ends of each bottom piece, projecting half an inch, raising the tops of the frames $16\frac{1}{2}$ inches from the bottom-board. To keep the frames adjusted with the sides of the hive, drive a nail, projecting $\frac{3}{8}$ inch into both ends of the top and bottom pieces, keeping every frame three-eighths of an inch from the boards forming the front and back of the hive. To hold their position to each other, I drive a nail, projecting half an inch, inside of the top and bottom of the frame E, preserving a distance of half an inch between the frames. Then prepare the second frame in the same manner in relation to the third, and so on to the last. Next, to secure the outer frames from interference by the movable partitions or boxes, which, each in their turn, form the walls of the central apartment, I drive into each outer side of the top and bottom pieces, a nail projecting three-eighths of an inch, as shown at C and D, fig. 1.

Thus it will be seen that no part of the wood of the frames comes nearer than three-eighths of an inch to any part of the hive, or of the other frames. Nothing but the heads of the nails present themselves to the wood, for the bees to glue together.

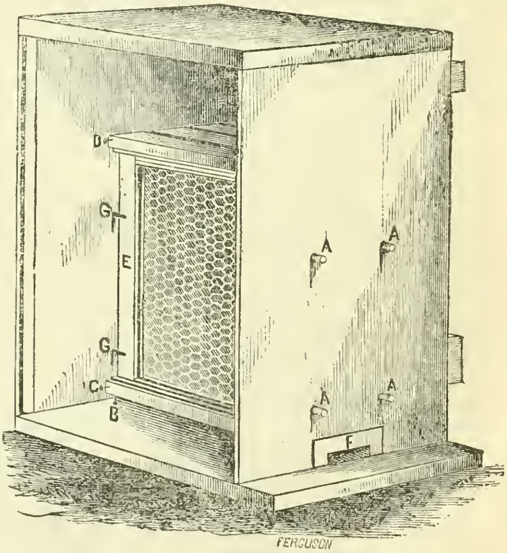

FIG. 1.

To hold them to their position in the hive, I introduce four or six pins, front and rear, five-eighths of an inch in diameter, (as shown at A A, fig. 1), passing through the boards and holding the frames, as shown at G, G. I have at any time only to remove the pins, to take the frames out laterally, without lifting them more than just enough that the nails on which they stand shall not touch the bottom-board.

To complete the central apartment preparatory to winter, I take two boards eighteen inches long and seventeen wide, and set them against the nails C, D, with one edge standing on the bottom, and fasten them in their place by a thin wedge or a nail ; and take a board that will reach across or cover the top, with any aperture through the top board covered with wire gauze for ventilation, desired by the operator. We then have the bees in the central apartment for winter. In the early part of the honey season remove the movable partitions, and place the surplus honey boxes, so that the inner ends, shall occupy precisely the place of the inner side of the movable partition, as shown in fig. 2, and the hive is prepared for the summer labor of the colony.

If any prefer frames in another form, or prefer bars to the manipulation of frames, every one can build to his own preference. The boxes may be of any desired number or size. I have the boxes I now make for use, six inches long, six inches wide, and five and a half inches high, outside measurement. The arrangement of the boxes, as is seen, is to place one upon another, forming upon both sides of the central apartment a wall, and enclosing it.

I build hives of three sizes. One size with two six-inch boxes side by side—that is, twelve inches wide with ten eleven and a quarter inch frames sixteen and a half inches high, and eighteen top boxes; the top boxes longer than the side boxes, giving about one hundred and ten pounds surplus. One with these boxes side by side, twenty-seven boxes, giving nearly or quite one hundred and fifty pounds, if full, (see fig. 2) ; and another with four boxes side by side, making thirty-six boxes, capable of containing about two hundred pounds of surplus. Each is built in the same manner as the medium hive illustrated. I have in reserve, for room, if I find it desirable, to add five and a half inches to the height of my hives, and when the top boxes are partly filled, raise them and place another course of top boxes under them—increasing their capacity, say thirty per centum ; having twenty-four, thirty-six, and forty-eight, for the number of boxes on the three sizes of hives. This increase of size for surplus room may appear ludicrously enthusiastic ; but my experiments thus far convince there is little danger of too much box room. This would give in the large hive, room for two hundred and sixty-six pounds of surplus, a little more or less, in surplus boxes. I think a prolific Italian queen would supply the brood for laborers to fill them all, in a good field and season. And with so much room, they would not be likely to swarm. One important object is, to be able effectually to control the swarming, even if we depend upon natural swarms ; which we need not do, though some prefer it.

Fig. 3 shows a stand of five hives, D, D. Entrance, E. Shutters, B, B. Shutters between hives, for winter, C. Eave troughs, A, A. The bench and ends just the width of the hive, 22 inches. The roof boards may be any width desired, to secure shade. Two other supports should be placed under the bench, under the inner edges of the second and fourth hives. A bench twelve and a half feet long gives room for five medium sized hives illustrated, and ten inches between for the entrance of the bees on both sides of the stand. The alighting board is always kept dry. The stand placed lengthwise, north and south, the morning and evening sun shine directly upon the alighting board. If preferred the hives may be turned a quarter round, and the alighting board and entrance be parallel with the side of the stand. But as they now stand, the boxes and movable frames may be approached directly upon both sides. Preparatory for winter they should stand as they are here represented. The boxes should be removed, the movable partitions in place, the whole space between the central apartment and the shutters and top of the hive be filled with straw or other suitable material. The device F (fig. 1) be taken out, and the aperture covered with gauze. The spaces between the hives should then be filled with straw, the shutters, C, be closed, and the bees kept perfectly dark and warm for winter. It may be well to place a board on each side between the top of the hives and the roof boards. I think the bees are then safe for winter. Should any think otherwise, they can set straw all around and bank up as much dirt as they please.

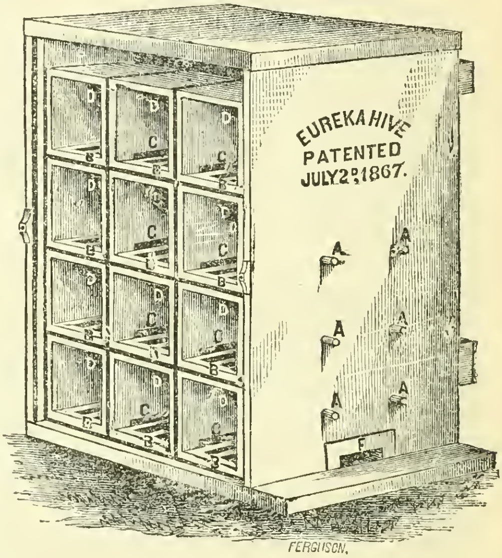

Fig. 2.

It will be seen that every farmer may put the six boards together to form the shell of the hive, prepare the entrance, and make four fly holes ; place in six bars with their undersides beveled and brought to an edge in the centre, fastened by nails driven through the sides of the hive into the ends of the bars. The boxes may be of any size, only leave them just fill the space, to serve as a partition, that bees may not stray all around the hive. He may thus secure from one to two hundred pounds in every season, if he has on a full suit of boxes, with guide comb, early in the season.

I present this hive and these views with confidence. I had four colonies in 1867, placed in the season before. They gave me four new swarms and five hundred pounds of surplus honey. They were the only ones in use. This, with honey at twenty-five cents per pound, and swarms at five dollars, is an average of fifty dollars each—enough to pay forty-six dollars for the four hives, twenty dollars for the four swarms, ten dollars for the right to use, and a balance of one hundred and twenty-four dollars in net profits. I here estimate the honey at twenty five cents per pound. It was so white and nice, I sold most of it for forty cents per pound.

My claim is the combination of the central apartment, the movable partition, and the side surplus honey boxes.

JASPER HAZEN.

ALBANY, N. Y.

[For the American Bee Journal.]

Prolific Queens.

I read with much interest, in the December number, Mr. Gallup's article on "Prolific and Long-lived Queens." It is a subject which demands our earnest, careful attention.

I raise queens for my own use, by keeping all Italian stocks strong in the spring, by moderate feeding, to secure early drones; and as soon as queen cells are formed in my imported stock, I swarm it. As fast as cells are ready, blacks or others are swarmed, and cells introduced to the old stocks. The queens all seem very prolific, though not all pure.

When raising queens for market, I *invariably* start them in full stocks. When the cells are sealed, I remove them to a hive of the regular size, but contracted inside by a division board, so as to contain but two or three frames, which are taken from another hive with *plenty* of bees. I sometimes make one hive answer for the nuclei, by having entrances at opposite ends and painted different colors.

My queens raised during the past season were all very large. I now raise none *out of the swarming season*, although this method is more expensive than the old one I used to practice, of raising them in small boxes, and from May to October. The queens are so much *more prolific*, that it will pay the extra expense.

It seems to me that if more care were taken by some of our leading breeders, to follow nature closer than they now do, in the raising of queens, the reputation of the Italians would be far ahead of what it now is. Purity is all very well, but fertility ought to be the first consideration.

GEORGE O. GOODWIN.

DANVILLE, P. Q., CANADA.

It seems that bees themselves cannot collect with impunity honey from noxious flowers, for they are occasionally subject to a disease resembling vertigo, from which they do not recover, and which is attributed to the poisonous nature of the flowers they have been recently visiting.—SHUCKART.

[For the American Bee Journal.]

Caution to Beekeepers, in Procuring Italian Queens to Breed from.

Beekeepers who wish to get pure stock to breed from, to Italianize their apiaries, cannot be too particular as to the responsibility of the parties whom they patronize for this. We have been imposed on more than a little in this respect, having purchased some dozen or more queens, from different breeders, out of which we could probably select three or four pure enough to breed from. The evil is not so much in the loss of the outlay, as in the mixed and perverted stock of bees it introduces in our apiaries. True the capacity of these for storing honey is perhaps equal to that of the full bloods; yet when we obtain them at the cost of the genuine, we are naturally led to expect a realization of the full benefit of expected superiority, not only in point of industry, but in every other desirable quality. That the Italians, when pure, excel the others, blacks and hybrids, in beauty of color and peacefulness of character, there can be no doubt. That we must have these points of difference, so peculiarly characteristic of the progeny of some queens we have obtained, present in those queen mothers which we propagate from, if we would preserve the species distinct and uncontaminated, is equally true. Therefore every beekeeper who contemplates procuring the Italian variety of bee, for the sake of the benefit of their superiority over our common kind, ought, in justice to the breed, and in deference to his own interest and that of his neighbors, procure them pure, because in this state only will they yield him their full value. We have had a few queens in our apiary from certain breeders, which, for purity of stock, challenge comparison anywhere this side of the Atlantic. Among these there is a queen from the apiary of Adam Grimm, which we obtained some time last summer, at a trifle more than the advertised price, and which we regard as a most valuable acquisition. Meantime, as we have a goodly number of colonies to Italianize next season, mostly the result of purchases last fall, we intend, if Providence permits, to increase our list of queen breeders next season, by accessions from the apiaries of other responsible parties. We believe in the utility of a multiplicity of breeders, as an antidote to the injurious consequences of "in-and-in" breeding.

JOHN L. McLEAN.

RICHMOND, OHIO.

There is a kind of green honey furnished in Western India, the produce of a bee indigenous to Madagascar, which is remarkable. It is of a thick syrupy consistency, and has a peculiar aroma. It is much esteemed on the peninsula of India, where it bears a high price. Whether its greenness of color is derived from the flowers which this species frequents, or is incidental to the nature of the bee, has not been ascertained. —SHUCKARD.

Bees are very fond of garden and wild mustard.

[For the American Bee Journal.]

The Professor Alive!

Gallup has been hitting the Professor pretty hard. In the first place, the object was to find out whether the Professor was alive, &c. He says that Gallup's assertions in regard to him, are not true. I sincerely hope they are not. I am aware that "hearsay is not evidence." Therefore I wished to call out the Professor.

Within the last two years I received about a score of letters *unsolicited*, asking my opinion of Mr. Flanders—the writers stating that they had been badly cheated by him; that they supposed, as he raised his queens on an island, they consequently must be pure, &c.; but that he palmed off impure ones on them. Now, as it is my wish always to say publicly, what I have to say, I can tell what I have been informed about the Professor; and then he can have a good chance to make all necessary explanations.

Two years ago, last spring, I received a flaming circular from the Professor, setting forth the advantages of his Kelley's Island Apiary, the purity of his queens, and the advantages of his Beekeepers' Institute, &c., &c. In a few days after I received another circular, from another party located on the above Island. Both circulars claimed that each was the only party having bees on said Island, and both were certified to by a Mr. Carpenter and others. Being personally acquainted with persons residing on said Island, I took the trouble to inquire into matters and things. It appeared from that inquiry, that the Professor did, in the previous season, employ or enter partnership with a Mr. Aaron Benedict, the party from whom I received the second circular. Mr. Benedict went to the Island and raised the queena. The Professor was secretary and treasurer; shipped the queens raised on the Island; and at the same time shipped hybrids or anything that happened to be convenient, from the mainland. When remonstrated with by Mr. Benedict, he replied that "the parties receiving the queens in all probability never saw an Italian bee, and if they received a queen in any respect different, or that produced bees differently marked from common black ones, they would be satisfied," or language to that effect. Furthermore, Mr. Benedict raised some seven hundred (700) or eight hundred (800) dollars worth of queens, and the said Secretary of the above-mentioned Beekeepers' Institute pocketed the money—Mr. Benedict receiving "nary red" or "greenback," for his services. In the following season he went to the Island on his own account, and the Professor still sent out his Kelley's Island circular. This accounts for my receiving *two* circulars almost at the same time. At this period the Prefessor had no bees on the Island, and consequently his (the Professor's) circular was a *sell*.

Last season, and the season before, the Professor sent out circulars into the west, stating that he could furnish queens raised from imported mothers by Mrs. Tupper, in this State. In that circular there was a certificate purporting to come from Mrs. Tupper, stating that his queens were as pure as any in the country, &c. At this time, if I have been rightly informed, Mrs. Tupper had never imported any queens; but the way the Professor obtained queens from Mrs. Tupper, was not the most honorable, in my way of thinking. It appears that he sent a line to Mrs. Tupper requesting an exchange of queens; and Mrs. T. forwarded to him two queens, for which, in course of time, she received in return one drone-laying queen and one hybrid; and she had the satisfaction of paying the express charges and taking their heads off!

I will state to the readers of the BEE JOURNAL that I have no personal spite against Mr. Flanders—not in the least. If any one wants to make further inquiries, he can apply to Mr. Aaron Benedict, Bennington, Morrow county, Ohio. Further, if the Professor had signed M. D. to his name, I never should have called it mule driver. Again, I have never seen any of his graduates of the famous Beekeepers' Institute; and Mr. Benedict is the only one I ever heard of. If I am rightly informed, he graduated with all the honors, and the Professor got all the money.

About the BEE JOURNAL's being good to take, I never heard any person say to the contrary. But, what about the *Bee-charm? Is that good to take?* Now to all those asking my advice about procuring queens from the Professor, my reply is, if I heard nothing else than only of his selling a bottle of Bee-charm for fifty cents, that, in my estimation, would have been sufficient to condemn him as a man of honor. ELISHA GALLUP.

OSAGE, IOWA.

P. S.—I have received three letters enquiring whether I do not think that the Professor has been into Kentucky with his Bee-charm, and taken the bees away *en masse*. If he has, and should attach M. D. to his name in his next circular, it would be an easy matter to interpret it. E. G.

Bees are exceedingly susceptible of atmospheric changes; even the passage of a heavy cloud over the sun will drive them home; and if an easterly wind prevail, however fine the weather may otherwise be, they have a sort of rheumatic abhorence of its influences, and abide at home, of which I have had sometimes awful experience in long unfruitful journies.

The cause would seem to be a deficiency of electricity in the air; for if the air be charged and a westerly wind blow, or there be still a sultriness with even an overcast sky, they are actively on the alert, and extremely vivacious. They are made so possibly by the operation of the influence upon their own system conjunctively with the intensity of its action upon the vegetable kingdom, and the secretions of the flowers, both odorous and nectarian.—SHUCKARD.

In spring particular care must be taken to keep bees from famine, and robbing by other bees.

THE AMERICAN BEE JOURNAL.

WASHINGTON, MARCH, 1869.

☞ The American Bee Journal is now published monthly, in the City of Washington, (D. C.,) at $2 per annum in advance. All communications should be addressed to the Editor, at that place.

We have received from Mr. Lambrecht, of Bornum, in the Duchy of Brunswick, two communications for the Bee Journal, which we shall translate and insert at an early day. The first is an essay on "the production of the queen bee," in which some novel views are presented, and the subject is treated with much ingenuity. The second is on "the effect of water on the combs and the life of the bees," being a contribution to the foulbrood question, in elucidation and support of the views expressed by him in his previously published articles.

Those who have empty drone combs will find them convenient and useful in feeding rye or oat meal to their bees. Fill the cells on one side of such a comb with meal, and set it slanting within the shelter of an open-end box, and the bees will carry off the meal with comparatively little waste. To attract the bees to the place, some diluted honey poured in an empty comb, should be placed in the box a few days previous, and removed when the meal feeding is to commence. The edges of the cells appear to furnish the bees with the requisite support and facilities for quickly forming the pellets into which they shape the meal when packing it in their baskets.

Where a colony of bees is to be fed to keep it from starving, it must be done immediately when it is discovered that impending want exists, and continued regularly, plentifully and perseveringly, until the opening season enables the bees to supply themselves from natural sources. Yet food should not be furnished so lavishly at any time, as to induce the bees to store it up in the cells in quantity, or lead to a premature production of brood. There is nothing gained in having young bees mature, in a tolerably populous colony, much in advance of the usual honey-gathering season. The heat of the hive will tempt them to fly out at unpropitious moments, and many will be chilled and lost. Far better retard brooding to a later period, so as to have the working force of the colony in full strength and continuous vigor, just when the usually profuse supplies of nature can furnish employment to unlimited numbers.

Those who resort to *stimulative* feeding usually begin too early, and feed too liberally. In the Middle States it is early enough to begin about the first of April, and administer small doses, say a spoonful, of diluted honey, in the *evening* of alternate days, at the mouth of the hive.

At a recent meeting of Hanoverian beekeepers, at Celle, Mr. Lehzen, who had all along professed to regard the Italian bees as in no respect superior to the common kind, stated that he had been induced to change his mind by observing that a rape field situated at a great distance from an apiary, was visited exclusively by Italian bees—thus demonstrating that these enjoyed a wider range of flight than other bees, and could consequently command greater or more diversified resources.

Dr. E. Parmly, of New York, has sent us a small phial containing "some bees from Mount Lebanon, said to be closely allied to the Egyptian," though, in alcohol, no difference is perceptible. Also, "two bees lately received from Ceylon, which are not named. They are smaller than the Egyptian, and differently marked."

The Board of Superintendents of the New York Central Park are following the example of the Acclimatization Societies of Paris and Berlin, in introducing bees. They have now several Italian colonies; and have taken active measures to procure other foreign varieties.

Seed Catalogue and Floral Guide for 1869.—M. O'Keefe, Son & Co., the celebrated Seed Importers and Growers, of Rochester, N. Y., have just published their annual "Catalogue of Seeds and Guide to the Flower and Vegetable Garden." This new and valuable work contains full descriptions of about fifteen hundred varieties of flowers and vegetables, with instruction for their cultivation, and directions in regard to the best use to make of them in laying out parterres, gardens, etc. It will be sent free on application to M. O'Keefe, Son & Co., Seedsmen and Florists, Rochester, New York.

Caution.

Mr. Editor:—In the February number of the Journal, we notice that Mr. Hazen has furnished you with a description of his "Eureka hive." We may be premature in conjecturing how it reads; but we take it for granted that his communication is essentially the same as that he has published in other papers. In those, he says:—"For the central apartment use either comb frames, or bars, at pleasure." It may not be out of place for us to add, for the *full* information of the readers of the Journal, that the comb frames illustrated in his cuts come under the claims of L. L. Langstroth's Patent, published in full in the February number of the Journal. The *pleasure* of those using them in the "Eureka Hive" would be much enhanced by their possessing the "right" to do so, as otherwise they would be liable to damages for the infringement of our Patent.

With the other parts of Mr. Hazen's hive, and with his theories, we have in this place nothing to do, our object being simply to caution the public against the use of our property, either in the "Eureka Hive" or any other, without paying for it.

L. L. Langstroth & Son.
Oxford, Ohio.

[For the American Bee Journal.]

Bee Botany.

Mr. Editor:—As the time of most interest to beekeepers is near at hand—the time of blooms and honey gathering—will you permit me to make a suggestion through the pages of your valuable Journal.

It is a matter of the highest interest to those who would have an intelligent understanding of the capabilities of our whole country for the production of honey, to know what flowers of value for bee-pasturage grow in the different parts of the country, when, and how long they bloom, and what is their comparative value. I wish therefore to suggest to young readers, that they observe and make a note of—

1. The plants which furnish bee-pasturage—giving their botanical names whenever possible.
2. The period of flowering, and the length of time they are in bloom.
3. The comparative quantity and quality of the honey furnished by different plants.
4. The observations actually made in regard to such plants, as may be cultivated on purpose for honey.

If persons in all parts of the United States will make accurate observations, and report them through the pages of the Bee Journal, it will not only interest apiarians, but botanists also, and those in general who study the resources of the country.

I will take my own advice, and in due time present to your readers the results.

John Hussey.
Glen Dale, Hamilton Co., Ohio.

[For the American Bee Journal.]

Novice's one Blunder of 1868.

Now, Mr. Editor, and the rest of the knowing ones, as Mr. Gallup calls them, please don't think, from the above heading, that we call the rest of our work of 1868 perfection. What we mean is, that from our standpoint we see no glaring blunder except the one alluded to—which was as follows:

On a bright sunny Sunday afternoon in May, 1868, (now we always intend to respect the Sabbath, but it seems our bees do not; and if they want to swarm, or any of the young queens are ready to hatch, they do not seem to care a cent what calender clocks and theologians have to say about proper days for labor or rest, &c; but rather the contrary, as though they thought it an excellent opportunity to "show off" their utter disregard for the fixed rules and careful bringing up we have been at so much pains to give them), but to return to that sunny Sunday afternoon, if we can find it, after so long a ramble. We were passing a pleasant hour, reading a chapter in "Dickens" to a friend, when it struck us that we had started some queen cells, or rather had taken the proper steps to induce a colony of bees to do so, just nine days before, intending to remove them on the morrow; and fearing that some precocious aspirant to royalty might take a fancy to come out before the usual time *because* it was Sunday, we decided upon an examination and invited our friend, who "knew bees some," to witness the operation.

Sure enough, a young queen was just gnawing a hole into the outer and wicked world; and to prevent her from having the sin of murder on her conscience at such an early age, we thought we were excusable in removing temptation from her path, even if it was Sunday. Accordingly we removed frames with the adhering bees from several strong hives, and inserted the surplus queen cells, being careful as usual to see that we removed no old queen. But as the case was urgent, we must confess we ran our eyes over the frames more hurriedly than usual.

After getting everything all right, as we thought, we resumed our reading till evening, when we examined our small colonies to see how many queens were hatched. The one mentioned was out; and another, where we had given only a single frame, had the cell open, and in looking carefully we found a fine large queen—a *remarkably* fine large queen. But, alas, she had only one wing, and we were about to pinch her as useless, when our friend desired to try her first and see whether she would not lay eggs, as Mrs. Tupper had had one that did so under similar circumstances. Although we had little faith in such an experiment, we finally put her in a cage and laid her at the honey-board of another hive, giving the nucleus another cell. She remained there some weeks, was fed by the bees, and seemed lively, when the thought struck us of putting her with nuclei-raising queens, to prevent them building drone comb. This plan succeeded so well that we used her all summer in this manner in a dozen different hives as cases required, and were about writing to you of a plan for making use of imperfect queens.

In the fall, having no further use for her, we released her in a queenless colony, by way of experiment; and, strange to say, she commenced laying immediately, and produced *real Italian workers!* Mrs. Tupper corroborated.

Some time before this, we had noticed that one of our heaviest stocks had done very little all summer—had cast no swarm, and stored but little honey in the upper story. It was in the improved Langstroth hive, and was in every respect as good a stock as the one that gave us the 203 pounds.

Of course you see it all now. The imperfect queen was the old one that we had clipped the season before, and had torn open the cell immediately, though it looked very much as if a sound queen had hatched from it.

You knowing ones can laugh at our not being able to tell a queen one year old from one only one hour old; but perhaps that too was because it was Sunday.

As the heavy stock had not succeeded in raising a queen we gave them their old one again, after she had been bandied about two months in a cage. Query, did she recognize her old home? She was received all right as soon as presented. The blunder cost us at least 100 pounds of honey.

Is it not *possible* that Mrs. Tupper removed *two* fertile queens, as it is now established that two are frequently found in one hive?

When queens are suddenly removed why do stocks so often fail in replenishing them, if left to themselves? Such has been our experience several times.

A firm resolve to "look sharp" enough, so that we may avoid falling into the same error in future, is nothing new for

NOVICE.

[For the American Bee Journal.]

Our Honey-Emptying Machine.

MR. EDITOR:—We receive many inquiries in regard to the above, which we will try and answer here. We supposed your readers had all seen the engraving and description of Mr. Langstroth's, in No. 3, vol. 10; so we were not as particulor as we should otherwise have been in our explanation.

Of course the comb has to be turned, as the honey comes from only one side at a time; and *very heavy* combs should be only partly emptied from the first side, as the weight is apt to injure the comb, unless turned very slow.

We do not know that it makes any particular difference in regard to size of wire cloth, that is, whether coarse or fine; but should prefer it rather heavy, as the weight of honey is apt to stretch it out hollowing if too light.

As to irritating the bees, the effect is quite the contrary. As our time during the honey season was much occupied otherwise, we very often shook the bees from the frames as fast as we could handle them, hybrids and all, without any kind of smoke or BEE CHARM, and the oftener we shook them, the less they noticed it.

As we had, or managed to have, a full set of empty combs with the American hive, we frequently shook the bees from *every comb* in a heap in front of the hive, replaced the empty combs instead, and let the bees crawl in at their leisure—paying no attention to the brood, whether capped or uncapped, except to turn slower, so that the larvæ were not thrown out; which any one can do with little practice. That the brood is uninjured by the process we tested repeatedly, by giving frames thus emptied to weak stocks; and in one case we raised a lot of fine queens accidentally from a frame that had a little uncapped brood in it, after being whirled. Towards the last of the season we made a fine swarm from brood remaining in our extra set of empty combs; that is, we gave the empty combs to first stock, and so had a set in their place when we finished which contained brood. These, with a fertile queen, and perhaps a pint of bees with her, soon made a tolerable swarm.

The honey is not at present as saleable as that in the comb, although we have had little trouble in getting twenty-five cents a pound for it; but have had many calls for comb honey, when nothing else would do.

Both white clover and bass wood honey have candied solid since the cold weather set in; but this can be melted again by keeping it in an oven or other place at a temperature of about 200° F. for some time. And we *think*, but are not quite positive, that after this treatment it will not candy again.

Will some better chemist than ourselves tell us of some harmless ingredient, to prevent this crystalization process?

Many correspondents ask us for samples of our labels for the jars. We subjoin one for their inspection.

MEDINA, OHIO. A. I. ROOT.

PURE HONEY,

GATHERED FROM

....*blossoms, by*

ITALIAN BEES.

FROM THE

APIARY OF A. I. ROOT, MEDINA, OHIO.

☞ This is much purer and in every respect superior to ordinary strained HONEY, as it is separated from the comb by a new Mechanical Process just as it is gathered, preserving the respective flavor of the particular flowers from which it was obtained.

A circumstance which may render it very necessary to feed bees, is, when several days of bad weather ensue immediately after they have swarmed; for then, being destitute of every supply beyond what they carried with them, they may be in great danger of being starved. In this case diluted honey, or sugar water, should be given them, in proportion to the duration of the bad weather.—WILDMAN.

[For the American Bee Journal.]

Workings of the Honey-Emptying Machines.

Mr. Editor:—In the January number of the Journal, I suggested that, as the Italian bees are belligerent and not disposed to submit, when they have full stores, to have their goods spoiled without a protest, that the frequent removing of frames and brushing the bees from the combs, in order to empty the honey, might exasperate their dispositions to such a degree as to render them unendurable; and I asked for light on this point. My friend, H. Alley, of Wenham, (Mass.), has somewhat relieved my difficulty. The plan is to use on the top of the hive narrow boxes, and remove the honey from these instead of from frames. He makes and uses the Langstroth hive, and on one of these he places fourteen boxes. He has an improved Langstroth, on and around which he places twenty-four of these boxes. They are 7½ inches long, 2¾ inches wide, and 6 inches deep, with glass sides, and hold three or four pounds of honey each. The surplus honey is stored in these small boxes, because it sells better in the Boston market in small packages. Each box contains one comb. He says he placed some of these boxes full of honey in the machine, and it worked like a charm and removed the honey in a few seconds, without injuring the combs in the least. He thinks a good swarm, in the best of the season, would fill a set of these boxes, having the empty comb, in one day. If they would do it in a week, it would be great honey-gathering. If the bees will work in these boxes as they will on frames, it will be undoubtedly the best way of managing them in connection with the honey-emptying machine. As these boxes are to contain only one comb each, I think they might be reduced to 2¼ inches in width, and then sixteen could be placed on a hive. I have demonstrated the fact by a few experiments that bees will go into boxes placed directly on top of the frames, and will work with eagerness at times when they will not ascend through holes in the honey-board. Place these long narrow boxes on the top of the frames in two rows, fourteen or sixteen in number, and when the bees have filled them with comb and honey, take them to the machine, (after the bees are disposed of, which is easily done), empty them and replace them, and thus let the work go on. The glass sides are easily removed. They are five by seven inches, slide in grooves cut in the ends, and are kept in place by wooden strips, one inch wide, champered at the ends to fit the groove. This strip is pressed down to the glass, and holds it in its place.

P. R. Russell.

Bolton, Mass.

Many hives of bees which are thought to die of cold in the winter, in truth die of famine, as was the case in the winter of 1759; for the constant rains of the preceding summer hindered the bees from laying in a sufficient store of provisions. The hives should be carefully examined in the autumn, and should then contain at least twenty pounds of honey.—Wildman.

[For the American Bee Journal.]

Artificial Swarming, and Bee Stings.

In volume 3, pages 63 and 91, is given a method of artificial swarming by "Belmont." Being a beginner in beekeeping, I was induced during the past season, to try what appeared to be a very simple mode of effecting that operation; but I must say the results were not at all satisfactory. In each case, at least one frame of brood and honey was given, and a sealed queen-cell inserted. In more than one instance, however, the bees destroyed the cell given to them and commenced others; and in every case (though the season has been most favorable for honey gathering in this locality, and none were divided later than the eighth of June), the bees have failed to give any surplus Indeed they have been weak in numbers throughout and are barely fit for wintering. I have no doubt the method pointed out would do well, if occasional help in the shape of brood from the parent stock were added. On the other hand, the hives removed from their stands and retaining the queens, soon became too full and were constantly trying to swarm. I found too that any new combs built by these last were almost invariably drone comb.

My experience corroborates the statement on page 107, with regard to the effect of the poison of stings. Three years since I scarcely regarded it; but now it produces great pain and swelling, the later not subsiding for two or three days.

Briar.

Ontario, Canada, Nov. 1868.

P. S.—Non-Swarmers.—I have lately been informed that in the northern part of New York, and in Vermont, many beekeepers are dispensing with hives; and instead are placing swarms in houses constructed for the purpose, into which they can go for honey at pleasure. Not having seen any notice of this system in the Bee Journal, I conclude it is not much adopted.

[For the American Bee Journal.]

Improved Un-Paten'ed Bee-Feeder.

With a brace-bit bore a hole of suitable diameter through the honey-board; file it, to make it somewhat conical on the upper side of the board. Procure a thick tin ring made to fit loosely in the hole: and just as broad as the hole is thick. Spread a small piece of linen cloth over the hole, push in the tin ring, and insert in it a feeder such as described by Mr. Price on page 120, of the December number of the Bee Journal. With this device you can remove or insert the feeder, without interfering with the bees.

Ch. Dadant.

Hamilton, Ills.

A fine winter is dangerous to bees, and many more of them die in a mild winter, than in a cold one.

AMERICAN BEE JOURNAL.

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AT TWO DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

VOL. IV. APRIL, 1869. No. 10.

[For the American Bee Journal.]

Management and Mismanagement.

Let us see whether we cannot explain two methods of bee management, and ascertain which we like the best:

Mr. A. belongs to the second class of beekeepers. He counts the number of swarms he has in the spring, without any regard to their condition. He meets Gallup, or some other putty-head, about the last of April, and the first salutation is—

"Good morning! I am glad to see you. How are your bees doing?"

"Oh, they are doing first rate. How are yours getting along?"

"Well, you see, I wintered over twenty-five swarms; all came through in excellent condition; but they do not appear to be doing anything now. I am afraid several of them have lost their queens. I do wish that you would come down and see them, and tell me what is the matter."

We go, of course.

"Here is one of the swarms that I think have lost their queens."

We step up to the hive and take off the cap, and the condition of the hive is *this:* The honey-board is left off, and there is a piece of dry comb laid on the frames; no signs of any honey in the comb or in the hive. We take out the frames, one by one. There is a small stock of bees and a good-looking queen, but no brood of any description.

"Well, Mr. A., you see here is a good queen."

"Yes, I see her, but what is the reason she don't breed?"

"Can your hens breed without something to eat?"

"Why, man alive, I have been feeding them all the spring. It cannot be that they are starving. Once or twice a week I have given them a little honey or some dissolved sugar."

"Yes, I see you have fed them enough to keep them from actually starving to death, and that is all."

We examine several other swarms, and find more than one half of the number in nearly the same condition.

"Well, Mr. A., as I was named after a prophet, allow me to prophesy a little. If this is your method of managing bees, you can never expect any success in beekeeping."

"Allow me to explain; when the honey harvest commences, these bees have to expend all their force and energy in increasing their numbers; and by the time they are prepared to gather honey, the harvest is past, (especially in such a season as the last,) and they will starve by the first of December; or, if wintered through, they are in the same condition next spring."

This Mr. A. is no imaginary person. We have seen hundreds of such beekeepers.

Now for Mr. B.'s management. He has, we will say, twenty-five swarms, and they are in what he calls an excellent condition on the last of April. Now let us examine them. Here is the first swarm we come to. We take off the cap, and behold the honey-board is on and fits close; all upward escape of animal heat is carefully guarded against, (you perceive this is precisely the opposite of Mr. A.'s.) We take off the honey-board, and behold the first thing we discover is bees in any quantity. We take out the frames and examine. Here is an abundance of brood in all stages, from the egg to the perfect bee, and a considerable amount of honey yet. Every day that they can fly out, they are carrying water and pollen; and when the honey harvest comes, they are ready to take advantage of it; and they will store enough at least to winter on and last until the honey harvest comes again, in any season that I ever saw.

"Now, Mr. B., tell us how you manage to have such good luck?" (This Mr. B. belongs to the third class of beekeepers, and consequently has no secrets in beekeeping.)

"Well, sir, when I set out my bees in the spring, I overhauled every swarm, and examined every comb; hence I knew their exact condition. One swarm, which I thought was rather weak, I stimulated in the cellar, and set them to breeding very rapidly, two or three weeks before setting them out. I found three swarms out of the twenty-five that were not very well supplied with honey; and I equalized their stores by exchanging combs with swarms that had more honey than was necessary. I could have fed them, but I prefer to have my bees self-sustaining."

"Well, how do you manage them through the summer and fall, so as to have them come out in good condition in the spring, as yours have this spring?"

"I practice artificial swarming altogether, and use a hive with small frames, and one that I can contract or enlarge to suit any sized swarm."

"Oh, that is one of Gallup's whims."

"Well, suppose it is, so long as it works well in practice, and Gallup does not charge anything for his whims. I keep all my old swarms strong, and when I make a new one, whether I commence with one frame or more, I keep that strong also. I am careful not to enlarge my hive too fast, and if I get only six frames filled with comb, I allow the bees to fill that with brood and honey; and then if the honey harvest is cut off, I have a good swarm to winter. The dimensions of their hive is twelve inches deep, twelve inches from front to rear, and nine inches wide; and each comb is occupied with bees, brood, and honey. Or if they fill eight frames, I have got a hive just twelve inches square, which, when wintered in the cellar, will winter just as well as a full hive; and with a young prolific queen, they make an excellent stock to store honey the next season, after filling their hive. Now, you perceive, that if I had enlarged this hive faster, and caused the bees to fill it with comb in such a season as the last, I should have had a hive with plenty of comb and bees, but no honey, for they would have consumed all their honey in building comb and raising extra bees. I wish to have you thoroughly understand this theory. If you have four frames in your hive, and the bees crowded on these four frames, all their labors can be carried on, out doors and within. But if you enlarge it to eight frames, with only the same number of bees, it requires so many more of the workers to stay at home and keep up the animal heat, that none can be spared to labor outside. This is one reason why so many complain that artificial swarms do not work as well as natural ones. Then, too, in the latter part of the season I manage to get rid of all the old queens, or queens that are liable to fail early next season; and get young prolific queens in their places. And here let me remark that, years before I practiced artificial swarming, I used to take surplus queens from third and fourth swarms to supplant old queens; and I never failed in getting prolific queens. Third and fourth swarms frequently come out with from two to six queens each. If my swarms were in the condition of Mr. A.'s, I would commence feeding early in the spring, and I would feed all they would consume, till they commenced gathering honey, and then they would be in a condition to repay me for all my trouble—for if you have bees of the right age to gather honey, they will gather it if there is any to be found. But, in feeding, I should be careful not to feed so lavishly as to have the bees store the surplus in the cells, and then, further, I think I would be careful not to let them get into such a condition again. If I am to feed bees at all, I prefer doing it in the summer, rather than in the winter. And I want my hive large enough in the breeding apartment to contain, when filled with comb, honey enough for any emergency. I would sooner have too much than not enough, for if I had too much, I could easily convert it into bees and comb, or empty it out with the honey-emptying machine. We will suppose that I kept on stimulating my bees after the honey-harvest was cut off last season. I should either have had to feed them large quantities, or they would have kept on breeding and consumed all their stores. Then I should have had to feed all winter, and again this spring, or let them starve. Thus you will perceive that you must know how to feed, and when to feed, or all your profits will be used up in feed. Mr. Quinby, in his Mysteries of Bee-keeping, says that you may destroy a swarm by feeding—that is, if you have a swarm which has some honey on hand in the spring, and commence feeding early, getting a numerous brood on hand; and then cease feeding before they can gather anything. A swarm thus treated, or rather mal-treated, would starve; whereas if it had been let alone it might have become a profitable stock. I quote from recollection, as the book is lent out. And what Mr. Quinby says you will find pretty reliable. All the fault I find with the book is he did not tell us enough. But there it is again. There would have been nothing left for the BEE JOURNAL, if he had told the whole. Mr. J. M. Price, in the January number of the BEE JOURNAL, says that Gallup, by his own confession, does feed bees, &c. In all probability I feed as little as any practical beekeeper in the United States; for I hold that bees ought to be, and can be, so managed as not to need feeding. In fact, bees ought to be self sustaining; and they will be, if properly managed; and then, when there comes a good season, we may expect profit. It will not take all summer to pay for a dead horse. As I said before, it is necessary to know how to feed, when to feed, and what you are feeding for; and then you can do as you please. Mr. A's bees will be troubled with moths without number, because he has so many weak swarms and so much unguarded comb. Whereas, with B.'s management, the moths will be, as Novice says, "*like angel's teeth and hen's visits*," few and far between. Because, if B. has a small swarm it is a strong one, for, with his management, all the combs they have are occupied with bees, at all seasons when moths can work. I did not find a moth of any description in my thirty-five swarms last summer; and there were swarms only a short distance from me entirely destroyed by the moth; and that, too, where the swarms had good queens, for I examined them. If you do not wish to follow B.'s method or management, stick to the principle; for the principle is correct, and the principle is what we are after. A very small swarm of bees, in the right kind of hive, and with the right management, can be made into the very best of swarms. In the management of bees there are certain principles that must always be kept in view. There are a great many good methods; but those principles must not be violated if we would expect to succeed. You can easily see that A., with *his* management, will not receive as much profit from his twenty-five swarms or stocks, as B. would from twelve, with his management."

On reading this article over, I find that you might as well say Gallup in place of B. How does it happen that A., living on one side of the street, has any quantity of swarms destitute in fall; while Gallup, on the opposite side, has increased to double the number that A. has, and still Gallup's swarms have abundance of honey for wintering?

ELISHA GALLUP.

OSAGE, IOWA.

[For the American Bee Journal.]

Upward Ventilation.

I have groped in the darkness of ignorance and self-conceit, and want to tell apiarians how I discovered the truth.

A skilful bee-hunter told me that bees with upward ventilation were always dry and in good condition in winter. One of my neighbors took two hives from their stands, set them on the ground, took honey from the top, and, the bees being in the way, the tops were not entirely closed. The winter was hard, and the snow drifted over the two hives on the ground; but when it melted, the bees worked out of the tops of the hives, and were in fine condition. All on the stands—five or six—were dead.

But I could find no upward ventilation in hundreds of bee trees which I examined. Bees would not work in a cap with a fly hole, or not air tight. When I gave them a fly-hole near the top of the hive, they kept it stuffed with bees, to retain the warmth, closed with propolis, and used those lower down. One fall I bought a barrel of Hoosier honey, followed the bee-hunters collecting the bees, and observed the small swarms were in narrow well protected cavities. I united the remaining bees, making twelve swarms, put them in hives in the cellar, with some combs to cluster on, bored holes in the tops, poured honey in rings around these holes, and tapped on the hives. The bees came up and fed once in two or three days, keeping the holes stopped when not feeding. They all soon died with dysentery, except one that had honey in the combs. This proved that eating honey exposed to cold which checks perspiration, causes dysentery. In the light of this experience I ought to have known why bees are opposed to upward ventilation, and would not work in caps unless there were tight and closed fly-holes at the top.

I settled here in 1834. Wild bees were plenty, and I made it a point to examine every tree I found cut, size and shape of cavity, size and position of fly-hole, and thought with Quinby that they were miserable places for bees, and that I could contrive better. I had the dyspepsia then and slept but little, and spent the waking hours of night, year after year, planning hives; but always discovered some defect in my plans. I was ignorant of the nature and laws of matter, and became conscious of my inability to devise anything reliable. Down the vista of the past I saw the wrecks of human invention disappear in the dark waters of oblivion. One night, as I lay thinking of my hopeless labors, an overwhelming conviction, sudden as the lightning's flash, resolved all my doubts in a moment. It seemed impious to suppose that Infinite Wisdom and Goodness had not furnished the bee a home adapted to its needs. It should be our pattern, with modifications, to adapt it to our wants. Then my soul was filled with light.

> "There was a revelation there;
> Truths, before not understood,
> Crowded on a startled ear."

I had now a base for future discovery—a standard by which I detected error—a test by which I determined every doubt—an unchanging faith in Nature, as the outward manifestation of the Deity. Thenceforth the native home of the bee was my admiration and study; and, years after, when every American authority was recommending almost unlimited upward ventilation in winter, and the bees were dying with cold and dysentery, I endeavored, through the pages of the *Prairie Farmer*, to expose the error, and hoped to see it dying among its worshipers.

John M. Price, in the May number, page 218, wants to know what killed his bees. I suppose they were smothered. In cold hives a fly-hole at the bottom may do in mild weather; but the first cold snap a great many are lost every winter. Compelled by the cold, the bees creep together closely; the outer bees are chilled, and if they remain in this condition thirty-six hours, or freeze, they never recover. By some kind provision, before they reach the freezing point, a disturbance ensues; perhaps the central bees are distressed for want of air, and struggling to obtain it, they break through the torpid crust. Panting and gasping for breath, they need a great supply of air, and if they get it much heat is generated; the torpid bees are covered, revived, and go to the centre for honey. If not, the bees perish. If the hive is too broad and cold, or the swarm too small, the torpid bees may not all be roused, and some will die. The colder the hive, the more air is needed to generate heat; and the more air we give, if it escapes at the top, carrying off the heat as fast as generated, the colder will be the hive and the more frequent and severe the disturbance and suffering, wearing out the bees. Thus small swarms consume honey enough to winter a large one, and perish before spring. Heat and moisture are elements of life, but cold is death.

Now, Mr. Price, let us look at the divine pattern, the hollow tree. You know bees succeed here, as a rule, without upward ventilation. This is a stubborn fact—a knockdown argument that upward ventilation men have not the manliness to acknowledge, and will never have the ability to set aside. But we find here a fly-hole on the side, often from three to five inches in diameter, not liable to be choked up, admitting an abundant supply of air for all emergencies, without carrying off the heat; a narrow cavity enabling the bees to command all their stores;

a cone-shaped top, in which a small swarm may build comb rapidly, cover more brood, and spare a larger gathering force ; good non-conducting walls, with less inside surface in proportion to the space enclosed, and therefore a warmer and better hive, as far as the bees are concerned, than ever was invented by human conceit. The windows of our dwellings are covered with frost, but we put water on the stove. The plaster is too warm to condense moisture. Condensed moisture is needed when bees are confined. They dwindle to a handful in dry spells in Texas, in summer. The Arab muffles his face and falls to the ground, to escape the dry air of the desert, for water is essential to animal life. For more on this subject, I refer Mr. Price to the *Prairie Farmer*, Nov. 14, 1861, page 321; March 15, 1862, page 164.

In warm hives bees cluster loosely, and air circulates freely. They sleep most of the time, requiring little honey or air. Their lives are not materially shortened by the lapse of time while in repose, both food and air are obtained without disturbance, and they are fresh and vigorous in spring. Horizontal ventilation allows the heat to escape from the lower combs, preventing mould, while retaining heat and moisture above, giving the bees control of the honey and preventing it from candying.

Will Mr. Price tell why a tight top is not as necessary to brood in January, February, and March, as in April, May, and June ? How vapor makes dew on a summer night, and rises out of a cold hive in winter ? Why bees need more air in cold spells, to keep them warm, and in hot spells to keep them cool ? How upward ventilation cools them when combs melt in the sun ? Why our teachers cannot agree as to the right form and size of a hive ? If they know the right, why are they always repudiating their previous teachings ? Destitute of scientific knowledge, have I not a right to expect these men of collegiate attainments to explain the apparent inconsistencies of their positions as regards well known facts, and give some logical reasons for the faith they hold ? What right have conservators of the public weal to allow an ignorant, crack-brained farmer to mislead the public ?

In my former communication, when I wrote, if the bees had upward ventilation, they would have suffered in the spring, the printer inserted the word *not*, thus reversing my meaning. The Bee Journal has a numerous list of able practical contributors. Many of us are fearful all wisdom will die with us. You have allowed each to blow his whistle. Your editorial course is just and liberal, and the Journal must be sustained.

My bees here have not honey enough for winter. I had 150 pounds of cap honey in Iroquois, and took 200 pounds out of the hives, and purchased 100 pounds more to winter these here.

F. H. Miner.

Lemont, Ill., Dec. 24, 1868.

Honey does not candy from cold alone, without some other concurring circumstances.

[For the American Bee Journal.]

The New Hive.

I believe in progression ; and to-day, if I have an idea in advance of what I had yesterday, with sufficient candor I shall acknowledge it. I once recommended the common box and caps, as sufficient for all our wants in a bee hive. When movable combs were presented, had I rejected them and obstinately adhered to the old idea, I should have lost much. Mr. Langstroth has the honor of introducing to the people of this country the movable comb hive in one form, and has covered the improvement with a patent. Others have made changes, and have also obtained patents. I want a hive for a specific purpose, and differing from all.

First, and most important, I want to control swarming, and to *prevent* it—not by giving extra room, and then guessing they will not swarm. I want to be certain. I want space on the inside to hold all the bees as they increase, and give room to work advantageously. I want to open the hive frequently ; and do not want the frames separated at their sides, bottoms, and tops ; but connected, to prevent the bees from making any little pieces of comb outside, to interfere with the necessary manipulations. No shallow chamber, but the surplus boxes on the top. A suspended frame must necessarily be supported by the sides or ends of the hive. I want it arranged for frames to stand directly on the bottom board, so that I can remove the outer case, and let the surplus boxes at the sides, and the strips of tin connecting the frames, form the hive proper.

When the case is removed, the combs can be handled without crushing or even pinching a bee, or marring the surface of a single comb. Such a hive I have completed. For myself, I prefer it to any I have yet seen. I am asked why I do not get it patented. There are several reasons. One is, it will not pay. Mr. Langstroth has tried it fourteen years—through one whole term, and claims that he is not remunerated yet. Could I expect to fare any better ? Some one would make a little alteration—it might be an improvement. I might think it an infringement. Litigation in the U. S. Court might be expensive. I should be quite likely to imagine that I had reached perfection ; and that, with me, would be the end of all progress. Whenever a person begins to think and talk of a hive as *my* hive, there is great danger of his being so blinded as not to see advantages in any other. Should any see advantages in the description that I have given, and wish to obtain them, I have no objection ; but I do not feel that I could afford much time to explain or defend.

M. Quinby.

St. Johnsville, N. Y.

In some parts of Surrey, (England,) as at Dorking, the first migration from the parent hive is called a *swarm;* the next is a *cast;* while the third increase in the season, goes under the name of a *cote.* This latter is also called a *spindle* in some of the middle counties of England.

[For the American Bee Journal.]

"Honor to Whom Honor is Due."

In the April No. 1868, of the Bee Journal, page 200, Mr. Baldridge, of St. Charles, Ills., expresses a little anxiety to give honor "to whom honor is due." He wishes to know, "as a matter of apistical history," who first used "double tiers of boxes," on the top of the hives.

Notwithstanding the delay in answering him, I shall claim the original idea. When Mr. Langstroth visited me in the summer of 1856 and acknowledged the plan new to him, I had been using surplus honey boxes thus for several years. Mr. B. says—"thus it seems that Mr. Q. does not attach much importance to the *discovery*, or he would, without question, have had more to say about it." Because one is not putting in claims continually for what is taken without as much as "by your leave, sir," he seems to think it all fair. Since Mr. B. expresses an anxiety to give honor where it is due, I hope he will review some of his instructions in practical bee culture, and then judge to whom, in some cases at least, honor is due.

I have now discovered, relative to surplus honey boxes, something very, *very* much more important than "two tiers" of boxes on the top. And that is, if boxes are placed at the side of the combs, and no division thicker than a narrow strip of glass, the bees will enter and work more readily, a week or ten days sooner, than if compelled to travel an inch or more from the combs of the hive to get into the boxes, and then five or six inches more to the top of the box to begin their work. I can put in boxes enough by the side of the combs of my hive to hold eighty pounds, and enough for sixty more on the top without the double tier.

A prosperous colony that has not swarmed, in a copious yield of honey, will store as fast in nearly all the boxes at once, as in a single set when placed at some distance from the body of the hive.

This remark closes Mr. B.'s article: "In many parts of the West every strong colony, if kept from swarming, needs two sets of boxes." I would say that in many parts of Central New York, when kept from swarming, they need three or four. And now I propose to tell Mr. B., and others, how a strong colony may be kept from swarming. Although this abundant room will have a tendency to discourage swarming, it is not by any means to be depended on to prevent it. And when it has been practiced for ten or fifteen years, and he wishes to know where it originated, he may be enabled to find the record in his diary. It will be the more necessary to put it there, as this, like other things, *will not be covered by a patent.*

It is only necessary to place, through the swarming season, a box twenty inches square, four deep, with a piece of tin or glass two inches wide, on the top, projecting inward. This prevents the queen from creeping over, she being unable to hold fast on the under side, and having her wings clipped, she is prevented from flying out. After an effort of this kind, she will return to her hive, and the bees with her. A movable comb hive is needed, that it may be opened once in ten days and all queen cells removed, to prevent her being superseded by a young queen. Or, should it be desirable to rear a young queen in her place, allow one cell *only* to remain. A little before it matures, remove the old queen. When the young one commences laying, find her and clip one of her wings, and all is safe from loss by swarming.

M. Quinby.

St. Johnsville, N. Y.

[For the Bee American Journal.]

Dividing Bees—Straight Combs.

Mr. Baldridge, on page 90 of the Bee Journal, vol. IV, advertises a small book that he has in preparation, "on getting straight combs and making artificial swarms, without looking up the queen—there being but one exception." Price not stated. If said book is to contain but these two ideas, the price should be moderate. If he cannot afford to give those two things to the public, I think, if his demands are not extravagant, that a club might be formed to purchase them, and present them to the readers of the Journal. It would save expense of publication certainly, and it *might* save the author some annoyance perhaps. Even after he has done his best, and fancied that he had given a new and valuable idea, some one might have so little sympathy with his pet plan as to make such unfeeling remarks as may be found on page 90 before mentioned—"Well, sir, if my plan were no better than that, I would keep still and never divulge it; for that is of but very little value." Having some experience, I can fancy what his feelings will be. What a pity that one's own case cannot stand on its own merits, without disparaging another's. Was it even good policy, Mr. B., to represent my plan as of but "very little value," because your "plan" need only be very little above good for nothing, to be superior to mine? On the contrary, had you represented mine as very good, and yours as infinitely better, you would have greatly enhanced the importance of your own invention. Perhaps it will be well to consider this in the next advertisement.

We want this book, if we are to have it, before the season for building combs. If delayed too long, some one may possibly get a similar idea and publish it to the world, and take from the book half its value, or, what might be still worse, claim it as original. And a further reason for haste, I am not sure until I procure his method, but my friend Hetherington, of Cherry Valley, New York, has a method superior to his, of dividing, or making artificial swarms, without being necessitated to look up the queen, even in the exceptionable case of one swarm. It can be applied to the box hive; can make eight artificial swarms in an hour, on an average; and, with movable combs, more. With his permission, I may give it some time. Mr. H. has probably sold more surplus honey of his own raising the past season than any person in the United States. I mention this to show that he has a system of practice that is successful.

M, QUINBY.

ST. JOHNSVILLE, N. Y.

[For the American Bee Journal.]

Dividing Bees.

Friend Fairbanks has a few remarks on page 116 of the JOURNAL, on dividing bees, and gives the practice of Mr. Wedge.

Mr. Wedge's practice, if written out in detail, would be successful even in the hands of a novice, and does away with the finding of the queen. The main objection, as presented, is that the mode is *too slow and too complicated.* We want a plan that is more simple still.

I hope Mr. Fairbanks and others will analyze this subject thoroughly, so as to simplify our manipulations in dividing bees, as much as possible. Many of us are not so far advanced that we can learn nothing more by careful and well digested *thought* in this department of bee culture.

By a close analysis of my system of dividing bees, I find that *in no case* do I need to find the queen. This is quite an important discovery, as it does away with that *one* "exception." My system enables me to divide bees very rapidly, and it would not be boasting to say that, by it, I can easily divide *two* colonies in the same time and with less trouble than *one* by the mode given by Mr. Fairbanks.

M. M. BALDRIDGE.

ST. CHARLES, ILLS.

[For the American Bee Journal.]

Queries.

What is the best comb-guide, and how best made?

What kind of guide does Mr. J. M. Price use to get such straight combs?

In Mr. Gallup's article on the Multiplication of Stocks, (BEE JOURNAL, vol. 4, p. 133,) in in forming the seven new stocks, would he pursue the same course to cause the bees to remain that he did with the first swarm made?

CANADA. QUERIST.

HOW THE BEES MAKE HONEY.—Were the following, copied from a late English work, but true, what vast quantities of honey might be *manufactured* by a strong colony of bees, if a cart-load of oatmeal were placed within their reach, and regularly replenished:

"The pollen or dust of flowers is the substance with which the bee covers itself, and sucks in, afterwards to be deposited in the form of honey, which is the natural secretion of the bee, *as milk is of the cow.* The bees deposit in their crop, or honey bag, which is an expansion of the gullet, and from this receptacle they disgorge it again when they return to the hive; it being, in the interval, somewhat altered by admixture with the liquids which are secreted in the mouth and crop of the insect."

[For the American Bee Journal]

Queries and Remarks.

MR. EDITOR:—I have carefully read every number of the AMERICAN BEE JOURNAL that has been published. I find many articles contained in its pages very amusing, as well as many that are interesting and instructive. Now I wish to ask you and some of your able contributors whether it is a fact that queen bees, in their larval state, are fed with food differing in composition from that fed to worker larvæ? Has there ever been a careful analysis made of what is called royal jelly, and of that not quite so royal which is fed to worker larvæ? Is it a fact that queen bees can be produced, under any circumstances, in less than ten days after a queen has been removed from a hive, unless the bees had previously started queen cells, to supply themselves with a young queen?

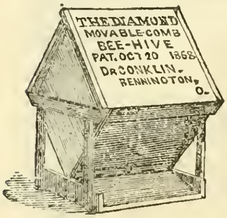
Since the spring of 1860 I make queen raising a special and prominent part of my business, and have never yet been able to produce a queen in less than ten days, usually in from fourteen to sixteen days, as I almost invariably use new laid eggs for propagating queens. Your contributor, Mr. Gallup, gives us through the JOURNAL several instances of queens hatching in seven and eight days from the time the old queens was removed from the hive. Our best American as well as European authors give the time for queens to hatch at eight days after being sealed up. According to my experience they are correct in this statement.

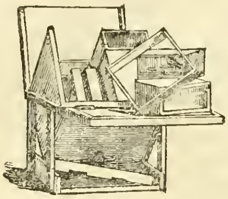
Friend Gallup also tells us that queens die of old age when only three or four months old. All animated creation is subject to accidents, disease, and death. If a child dies when only a few months old, that does not prove that old age has overtaken it. There are many causes for queen bees dying. I will give you my experience of one cause—which is, injudicious or too frequent handling. The queen will sometimes become frightened; the workers discoving her fright and agitation, will seize her by the legs and wings to hold her. While thus held she sometimes commences piping, and the bees will then cluster upon her, and frequently hold her in this situation until she dies from suffocation, or is so badly injured that she is thenceforward worthless. If a person desires to examine or exhibit a queen frequently, it would be well for him to have an observatory hive, with glass sides, to contain only one comb. In this way the queen could be seen at any time, without the risk of losing a valuable one.

COLERAIN, MASS. WM. W. CARY.

In the East, even in countries producing sugar in abundance, honey is extensively employed for the preservation of fruits, which in their ripe state in those hot climates would rapidly lose their fullness of flavor were they not thus protected—honey there being esteemed superior to sugar in the circumstance of its not crystalizing by reason of the heat, and also from its applicability to this use in its natural state.

The bees are a pacific people that labor for our good; and in return we should interest ourselves for them.—WILDMAN.





[For the American Bee Journal.]

The Diamond Moveable Frame Hive.

Mr. Editor :—As I promised, in the December number, to give the readers of the Journal a view of the hive I invented several years ago and patented last October, I herewith send you the electrotype.

The idea first came into my mind of using a diamond shaped frame, in the summer of 1862, while using a triangular shaped hive of Mr. Flanders, and noticing his claims and the advantage of tipping the hive, so as to have one corner or angle of the frame point upward when prepared for winter. Acting upon the idea, I tacked the top of two of his triangular frames together, having one angle point up and the other down, giving it the appearance of a diamond shape with the bar across the middle. I fitted the frames of two hives together in that way, and then inverted the empty hive and placed it over the frames for a cap. It gave me no place for surplus honey boxes, but it made a splendid hive for brood chamber; and my bees did so well in it, that I improved on it in cheapness of construction, by adopting the rectangular frame and square box or case, as you see, having the frames but partially (say two thirds) fill the hive, and leaving a space on the two upper sides of the frame under the lids or covers for super boxes.

I have two styles of rectangular frames in use. I first made the frames of three-quarter inch square strips, cutting the ends in a mitre box, so that one edge or angle of the frame would be against the hive, and the other would form a Λ shape for comb guide, securing them at equal distances apart by bent wire saddles, as in the triangular frame hive of Mr. Flanders. The bees in building comb will follow down the angle of the frame, commencing at the upper part or angle, and the combs will be built straight in the frame every time, "no exceptions." I then tried the flat frames, say three-eighths or half-inch thickness, letting them rest on cleats or strips at the side angles of the frames. And, now, to secure straight combs in these flat frames, without the triangular comb guides, was the question. Aaron Benedict, a Quaker friend, of this place, while raising Italian queen bees on Kelley's Island, in 1866 and 1867, told me that his friend with whom he boarded, Mr. Charles Carpenter, became interested in bees as well as grapes, and in making some new hives and frames, he used a marking guage along the center of the frames, and filled the crease or mark with bees wax, and the bees built the combs straight in the frames every time, commencing along the line of wax. I therefore adopted that idea, and find they have built every comb straight, and I have reason to believe that there is "no exception" to this rule also.

From specification of Patent No. 83,257, dated October 20, 1868. "This invention relates to a bee hive so constructed that the case and the frames therein are arranged obliquely to the table or platform on which the hive rests. A represents a frame in which is secured the hive B. Said hive is a rectangular or otherwise angular box, and stands on the platform C of the frame on the vertex of the angle of two of its sides, as shown in the drawing. The upper sides are hinged to the case at the side angle of the same, so that they may be opened from the top or ridge, whereby access is had to the interior of the hive, and which doors or covers serve as a roof for the protection of the same. Or the box may be divided horizontally through the middle, and the upper half removed for access to the inside. In the lower angles of the interior of the hive is arranged a series of rectangular comb frames, ("I use twelve.") Said frames are each supported in position by brackets, cleats, or other device, whereby they are held from contact with the sides of the hive and each other. The frames occupy a little more than one-fourth of the interior of the hive, and that the lower angle or section; whereas the rest of the hive is occupied by the honey boxes, placed upon and in immediate connection with the frames—a communication being established between the two, by means of bee passages cut in the sides of the boxes next to the frames. C, the platform referred to, serves as an alighting board. At the lower angle of the hive is the bee passage of half an inch the whole length of the hive, contracted or closed by the movable strip secured by a button. The cleat across the hive horizontally keeps the ends from warping, and also serves for a convenient handle for lifting the hive. Said doors or covers are cleated across the ends, and the upper one across the top; the cleats being half an inch wider than the thickness of the doors, to keep the doors from warping, and also to serve as a cornice, shutting down over the edge of the hive.

By placing the hive in the peculiar oblique position shown, it is easily kept clean by the bees, as all the dirt and waste falls to one point, the lower angle of the chamber, and passes out of the hive. By placing the movable frames in a correlative angle with the box or chamber, and but partially filling the same, leaves a large space on the two upper sides of the frames for honey boxes, (if we prefer them to the honey-emptier,) to which access is conveniently had, for removal or for inspection, by the folding doors or roof. The instinct of the bee leads it commence building at some angle, and that the most elevated or remote from the main entrance. To provide for this instinctive tendency of the creature, the oblique position of the frames offers such an angle to their wants. The upper one being the point from which they proceed to build the comb, is suited to either a large or small swarm, as the bees concentrate the heat in the upper point and thereby save all the wax; and as they store the upper part of the frame with honey or food, it leaves the main body of the frame for brood chamber, and secures a strong stock. The heat of the bees ascending concentrating in the upper angle of the hive, that portion is therefore kept warm, so that their stores are rendered accessible to the bees in the coldest weather. It will be observed that the honey boxes above the frames (if we use them) have the same angular point for the concentration of heat and the commencement of comb-building, as the frames. Hence, in this hive, the bees find every advantage which their instincts and necessities require in angularity of structure, instead of "tipping the hive," space warmth, thorough ventilation, and facility for keeping the hive clean.

What I claim as my improvement is:

1. The square or angular case B, folding roof or doors D, when the case is elevated upon the vertex of the angle of its sides, in the manner and for the purpose specified.

2. The angular frames F, when arranged within the case B, so that the vertex of the angles of said frames shall coincide with the vertex of the angles of the case, in the manner and for the purposes set forth.

3. The honey boxes *g g*, frames F, doors D, and case B, combined and arranged in relation to each other, in the manner and for the purpose substantially as described."

A. V. Conklin.

Bennington, Ohio,

[For the American Bee Journal.]

Bee Pasturage.

That sufficient and continued pasturage for bees, in every location, is the great desideratum for the successful and profitable culture of bees, by every apiarian, both on the large and the small scale, few persons can deny. Our attention is called to this subject by Giles B. Avery, in his article on Alsike clover and other crops for bee pasturage. (See American Bee Journal, vol. 3, page 151.) Well, if we can but obtain the half of what Mr. Avery claims, from the appropriate amount of pasturage, our gain will be immense, if adopted by the bee-keeping public. He says—"We give it as our opinion that if every farmer would put one half of the land now seeded to grass, into Alsike clover, bees might be very profitably multiplied in our country an hundred fold, and each hive furnish many times its present profit, and quite as many cattle sustained by the arrangement as at the present time."

It is quite evident that if we make the right disposition of our crops, we can both benefit our bees and other stock at the same time; and I think it is our duty to do so, or suffer the loss of the bees we have on hand.

Again, Mr. Mangold (A. B. Journal, vol. 3, page 168) says—"In view of the fact that bee pasturage differs very much in different sections of country, and that it is desirable to furnish supplies for the bees at all times during the working season, or from spring to fall, bee-keepers should on all occasions encourage the introduction and cultivation of honey producing plants and forage crops." A season like that of 1868 particularly demands attention to the above suggestion, since "from the beginning of July onward pasturage rapidly diminished, and the want of rain, with drought, soon constrained the bees to resort to their winter stores for support." This, of course, would instinctively lead them to cease rearing brood in sufficient numbers to supply the loss of population continually going on during the working season, by death or otherwise. And hence the cold season coming on finds the colony too weak to generate animal heat sufficient to keep them from chilling to death, even with stores enough at hand to keep them for months longer, if the proper warmth could be kept up. *For the want of sufficient pasturage, then, we have this failure.* Shall we suffer it to be repeated, without an effort to save our bees and make them profitable?

Mr. J. H. Thomas, in his "*Canadian Bee-keepers' Guide*," page 66, says—"The prosperity of bees, in any locality, much depends upon the amount of bee pasturage. In some localities it is abundant from early spring until late in the fall, nature having lavishly bestowed there her wild flowers. In other localities it is quite different. The section of country where I reside does not abound with wild flowers; and, in the fall especially, the bee pasturage is quite limited. This difficulty may be easily obviated, by the more extensive sowing of buckwheat and the introduction of Swedish white clover (the Alsike)." The foregoing gives the evidence and experience of friend Thomas in bee pasturage; and it is worthy of our attention.

Mr. Harbison, in his work on "*Bees and Bee-keeping*," says:—It is of the utmost importance for the success of an apiary that it should be located in a neighborhood where bees can readily find an abundant supply of good pasturage. The success of bee-keeping depends greatly on this. As well might a stock-grower expect to make his cattle profitable, without supplying them properly with food, as to suppose bees will live, thrive, and be of benefit to their owners, without obtaining constant supplies of pollen and honey, in some way, from spring to fall, with but little if any intermission. No person can fail to see that Harbison's evidence coincides, in every particular, with the preceding—showing clearly that we must supply this pasturage or lose our bees, and gain no reward for having owned them, but, on the contrary, loss of time and expense.

I next turn to K. P. Kidder's "*Secrets of Bee-keeping*," page 56. He says—"Connected with the cultivation of bees, it is essential that we understand the true conditions that most favor its properity. That these may be known, and in a great degree perfected by the hand of man, we are quite certain." "It is known that the only food of the bees is the nectar and pollen of flowers, and that different varieties produce these deposites in greater or less abundance." "Then, if we would prosper in an endeavor to multiply the species with success, we must cultivate those plants and trees, (where nature does not spontaneously produce them,) that will yield these flowers longest and secrete the greatest amount of saccharine matter within the reach of the bee."

E. Kretchmer, in his valuable "*Bee-keepers' Guide Book*," says—"Able writers are constantly encouraging the cultivation of trees,) and we must join them in their effort." Speaking of the Alsike clover, he says—"Yet its greatest advantage for bee pasturage is an equally valuable one, and no bee-keeper should hesitate to obtain a package of seed. Kidder says of it—"This perennial plant, which is being cultivated to some extent in different parts of the country, is considered valuable for cattle, sheep, and horses, and makes excellent bee pasturage.

Quinby says--"A honey-producing country may be like a grazing region. One field may pasture ten times as many cattle as another; and the same difference may be true of pasturage for bees." And speaking of the clover, buckwheat, and basswood sources of honey, he says—"Where all three are abundant, there is the true Eldorado of the apiarian."

We have in the *American Agriculturist* for 1868, page 18, the following communication from one of the Bidwell Bros. He says—"We found only six apiaries where natural forage was abundant throughout the season, and this was in small apiaries in isolated districts. Adjacent to thirty-two apiaries flowers were sown to cover deficiences, and these were by far the most successful apiaries we visited, making double the surplus honey, compared with the others taken as a whole. Were this branch of bee-culture properly understood, the yield of surplus honey might be increased several hundred-fold.

Dr. Blumhof says—"And in unfavorable years, he [the bee keeper] may have the mortification of seeing the bees perish with hunger, unless he considerately and seasonably makes provision for their wants." Langstroth says—"Doubtless, in these districts, where honey is so largely produced, great attention is paid to the cultivation of crops which, while in themselves profitable, afford abundant pasturage for bees."

Attentively examining the above quotations, we find the prevailing sentiment of the best apiarians is, that we must cultivate pasturage for bees, if we would make it a profitable business and do away with the "common failures" now so often to be found, extending over such a wide range of country. The best crops for bees should be cultivated, yielding both honey and pollen. And it will be good policy to cultivate those crops which would also be serviceable for grain, and pasturage or hay for stock; as that would be an important consideration for all concerned, and a great gain.

I am in, then, for improvement in the right direction.

JEWELL DAVIS.

CHARLESTON, ILLS.

As a general rule, place your hives where they will be least exposed to the wind; and where, though shaded, they will enjoy as much of the influence of the sun as possible.

[For the American Bee Journal.]

Bee Pasturage.

ALSIKE AND MELILOT.

The attention of bee-keepers is being directed to the cultivation of honey producing plants, to enable bees to store a winter's supply in extremely poor seasons, and add largely to their stores in more favorable ones. Among the plants recommended are the Alsike and Melilot clovers. I have but little experience in the cultivation of either of these plants, and shall not say much in relation to them. My object in writing is more for the purpose of giving credit where credit is due in the sale of seed. Last spring I sowed four acres to Alsike clover. I was determined to get the genuine article, if it was to be obtained, and purchased seed of five different parties. By far the cheapest and (perhaps with one exception) the best and cleanest —that is, the most free seeds that are foreign to it, such as timothy, red and white clover, &c.—that I purchased, was procured from Mr. H. M. Thomas, of Brooklin, Ontario, Canada West. Mr. Thomas was prompt too in filling orders, and the seed was put up in stout linen bags, and received in good condition; while some of that sent by other parties was put up in paper packages, which had broken open and part of the seed sown along "Uncle Sam's" mail route, where by me at least it was not wanted; and where, if it germinates and my bees are to work on the blossoms, they will be obliged to fly farther than even the Italians were ever yet known to do.

In the summer of 1867, I procured a small package of Melilot clover seed of Mr. Baldridge. I found the plant to be identical with one growing here and called by some Dutch clover, by others sweet clover.

From what has been published in relation to these plants, I must say that so far I have been somewhat disappointed in them both. The Alsike has exceeded my expectations. The seed was sown late, four pounds to the acre, on sandy soil (where it is represented as not doing well) in wheat, and dragged in. Notwithstanding the dryness of the season, and the fact that the wheat would retard its growth, it has been in been in blossom so that my bees have worked on it, and it is now quite as large as red clover sown at the same time in adjoining fields. It promises now, with me, to be equal if not superior to red clover for hay and pasture; and it will without doubt prove valuable for bees. The Melilot clover commenced blossoming early in July, and continued in bloom until September. But few bees could be found on it at any time, with the exception of about two weeks after a rain, during which time it was literally *alive* with them. I have never seen one-tenth part of the number at work on the same surface, on any other honey-producing plant. It was quite as much affected, however, by the drought as the white clover, buckwheat, and other flowers; and, during the dry weather, but little honey was collected from it.

J. A. TOWNLEY.

TOMPKINS, MICH.

[For the American Bee Journal.]

Wintering Bees.

Mr. Editor:—I have been much gratified to see and read, in your valuable Journal, that the *manner* of *wintering* bees, has, during the past year, been attracting more than usual attention. That this is so, however, seems quite natural, since it is now an admitted fact amongst all, or nearly all, practical apiarians, that some eight-tenths of all the colonies of bees that are lost, are lost during the winter and early spring months.

It may be an interesting subject of inquiry, to some writers, to attempt to account on scientific principles, and intelligently, for the loss and for the *cause* and *reason* of the loss of this or of that colony of bees. But, in a practical sense, what does it amount to, so far as a very large majority of bee-keepers of this or any other country are concerned, to learn through the columns of your valuable Journal, or from any other source, what causes the loss of this or the other colony of bees, after they are lost, unless the *means* and *manner* of saving and protecting such as may survive is also learned?

It certainly is of no practical value to any bee-keeper to learn or be informed that this colony died by reason of being robbed, or that the other colony was frozen to death. Nor is it of any benefit to him to learn that this or that colony died for want of stores or ventilation, or because of too much ventilation, or of dysentery, or because of anything else being wrong—unless he also learns from the lesson before him, or by some other means, how to prevent the loss of other colonies by like causes in future.

It may be said, and it has been said by some, that ordinarily it is not safe to attempt to winter a colony of bees having less than from sixteen to twenty pounds of stores to commence with. Others have said that thirty or forty pounds are absolutely required. Some writers claim that the best place, all things considered, to winter bees, is upon their summer stands, and that all attempts to protect the hives in which the bees are kept from the storms and cold winds of winter, are entirely useless, if not absolutely injurious. It will not be denied that a strong colony of bees, with plenty of stores, will pass the winter safely, and to all outward appearance very well, on their summer stands, unprotected. But, would not this same colony have passed the winter better, with many more bees and several pounds of honey saved, with proper protection from the storms and cold winds of winter?

I will admit that in a climate where the thermometer never sinks below the freezing point, and which is not subject to sudden changes of weather, from quite warm to cold, that protection to bees in the winter season, may be and probably is untirely useless. I will also admit that, in climates where for days and weeks in succession, the thermometer will range from zero to 10°, 20°, or 30° below zero, burying bees under ground, in special repositories made for the purpose, or depositing them in caves and other places under ground, may be, and in many cases is, necessary for their protection during the winter season.

And here, in eastern Ohio, in latitude about 40½°, unless in a very favorable location, I am fully satisfied (after an experience of several years in practical and experimental bee-keeping on a small scale,) that some kind of protection during the winter and the early spring season, is very beneficial to bees, when kept in hives made of inch boards, of one thickness. I have experimented in this location, in wintering both strong and medium colonies of bees on their summer stands without any protection; and also with the hives as well protected as the circumstances and their position would admit of. I have at the same time wintered like strong and medium colonies in a special repository, built for the purpose, entirely above ground. The results of such experiments have been uniform, as a general thing—a few exceptions only—that colonies which were proteced on their summer stands, wintered better than the unprotected ones; and that such as were wintered in the special repository wintered the best of any. The advantages in favor of the special repository and the results thereof, have been threefold. *First*, in the saving of from five to fifteen pounds of stores per colony, each winter; *second*, as a result, the saving, in good condition, of several medium colonies that were somewhat scarce of stores and bees in the fall; and, *third*, in having colonies both stronger in bees, and with an extra amount of surplus stores in early spring, and consequently earlier and better swarms.

The special respository spoken of, is a plain and cheap structure, and built entirely above ground. It is nothing more than a plain wooden building, eight feet wide, fifteen feet long, and seven feet high, weather-boarded and lined closely with inch boards, with a double floor, and a common lap shingle roof. It has a door at one end, and is built without any filling in between the flooring or the weather-boarding or lining. In a word, it is a plain out-building made double below, and on all sides, with a a single common lap shingle roof upon it. It is such a building as has answered the purpose very well here; but it is such a building as might, and probably would, be too close and warm in a mild and warm climate, or too open and cold in a very cold one.

In this repository I pack away bee hives in plenty of dry straw, about the first of December. Before doing this, however, I prepare them as follows: Contract the front entrances to about three-sixteenths of an inch of the entire width of the hive, and open the holes in the honey-board. Raise the corner or top of the hive slightly—say ⅛ of an inch. With this preparation, and in this out-house, I have packed away colonies of bees for several winters past, and wintered them with success. In packing them into this repository, I have always been careful to set the hives far enough away from the ends and sides of the house to admit considerable dry straw to be packed in the spaces there left. In short, I have always made free use of dry straw, packing it beneath, around, between, and above the hive; and have yet to learn that I have ever used two much dry straw for this purpose. Let the straw thus used be thoroughly dry, and then use it freely.

In this repository, and in *this manner*, I have successfully wintered several colonies of bees, which had not over eight or ten pounds of stores on hand when deposited therein about the first of December. Such colonies, however, generally need feeding a few days after being set out on their summer stands in the spring; and, with care, often prove to be the most profitable colonies in an apiary.

After repeated and successful experiments on wintering bees in *this manner*, on the 3d of December last, I stowed into this special repository twenty-three colonies of bees, giving the weaker colonies central portions therein. So far, they have remained quiet, making little noise either in very cold or in moderate weather.

This manner of wintering bees is not a new discovery with me. I got the idea when quite a boy from the following incident. It was when it was yet common for farmers who kept bees to condemn all weak colonies, that had not accumulated what was supposed to be an abundance of stores, in the fall season, to the brimstone pit. The writer, when a boy, became the owner of a late swarm, in consideration of hiving it in hay-making time. It was placed on its summer stand, with several other colonies, in the family garden. In the fall, as was then the custom, all the hives were carefully examined and lifted up to ascertain their respective weights. Such as were condemned, being marked, a day was set apart for the slaughter. About the first of the next April, this colony was found in an old-fashioned *gum*, in which grain had formerly been kept, in the barn. Around the hive and in the gum there was found considerable straw, which had the appearance of having been pretty well tramped in, rendering it necessary to literally dig out the bee hive. On bringing it to light the bees were found to be alive, and ready to resist any supposed unjustifiable interference. The result was that the colony was replaced on the summer stand, and did well during the following summer.

I may give you the result of the experiment now being tested, sometime in April next.

BELMONT.

JANUARY 30, 1869.

[For the American Bee Journal.]

Borage.

Who has borage seed for sale? And who will sell it the cheapest?

I see no advertisements this winter, and have lost those I had, the binder having thrown aside the covers when he bound the last two volumes of the JOURNAL for me.

By the way, the two volumes of the AMERICAN BEE JOURNAL make a very neat book. I would not take ten dollars for volumes 2 and 3, if I could not replace them.

QUERIST.

[For the American Bee Journal.]

Several Items from Novice.

MR. EDITOR:—Querist, on page 148, thinks we may be mistaken in thinking that the rye-flour in some way saved the honey, and asks us to give our *revised* views, after hearing his reasons why it could not be so.

Nearly all that we have written for the BEE JOURNAL have been *facts from actual experience*, not theories. In the above case we had a number of hives nearly destitute of sealed honey, *as we opened them daily* TO SEE, and had made preparations to feed them. But after they "went in" for the rye flour, they scarcely used their honey at all, even though breeding was very much increased; and we did not feed them at all, for they did not require any. Does not this look as though the meal answered in place of honey, as others who have tried the same experiment have observed before?

We do not think they use honey for packing the meal, unless largely diluted with water at least; and did not suppose they used anything, until a writer in the BEE JOURNAL suggested it; and cannot discover that they do now, although we have studied the operation considerably.

Mr. Editor, will you please tender our thanks to Mr. Gallup, for, listen, our two-story "brag hive" has been getting very uneasy of late, since the warm weather began; and the very evening after receiving the BEE JOURNAL containing his article on "Wintering," our "better half" remarked that *they* had a way of coming out when a light was carried near; and were buzzing in front considerably, though the honey-board was off entirely. But, as the cap was pretty tight, we commenced raising it up, and discovered that when it was clear off, they went in and behaved themselves like the rest. Mr. Gallup gave us our first clear ideas on the subject of ventilation.

Our small experimental swarm, last winter, that consumed so little, we happened to get just right; but this winter has been so much warmer, so far, that some of our bees are rather restless with all the ventilation the *American Hive can give them*—another thing in favor of the *Langstroth.*

Does any one succeed in inducing bees to use meal inside of their hives? We never have succeeded, even when *wet up with honey*; and yet those having *patent feeders* tell us about it.

When we first started to feed meal in the spring, we used honey and water; but after they got "a going" we doubt if they would notice it at all. We are getting in our meal now.

Mr. Editor, hurrah for 1869, says

NOVICE.

It is certain that 16,000 bees in one hive will collect more honey and wax, than the same number lodged in two different hives could possibly do.

In handling bees gentleness and boldness are, at all times, equally necessary.

[For the American Bee Journal.]

The Wenham Bee Muss.

Mr. Editor:—I judge by what I have seen in the Journal that you do not know that the vote to banish bees from the town of Wenham was reconsidered at an adjourned meeting, held only three weeks later than the annual town meeting. But such is the fact; and we have now no law upon the town records banishing bees from our bounds.

Now, while I am upon this topic, I may as well give your readers a little history of this bee question. I very much doubt whether four persons can be found in the town of Wenham, who believe that bees do injure the fruit by taking the honey from the blossoms. But the fact is (or *was*) that Mr. Gould had, by good management that season, made his bees pay him a very handsome income; and it was well-known throughout the town and county that Mr. G. had realized somewhat over *six hundred dollars* ($600) from fifty-two hives of bees, besides an increase of more than thirty new swarms.

Well, the fruit-growers, (of whom we have a few) got the idea into their heads that all of this six hundred dollars was just so much money out of their pockets And they determined to stop this kind of "thieving," as they chose to call it, at any cost. For this purpose some of them set themselves at work, and thus lawyers, professors, and scientific men generally were consulted as to the best plan of getting rid of the bees, and proving them to be a nuisance.

But the trouble was, they found it difficult to discover anybody who knew more about bees than themselves, that would state that the bees did any injury to fruit by taking honey from the blossoms. They then even went so far as to visit some of the members of the Legislature, to see whether they could not procure the enactment of a law declaring bees a nuisance throughout the State. In this quarter, too, they met with no success or encouragement. They were generally laughed at, in some cases called fools, and coolly advised to go home. This, however, did not not check them in the least. They were determined to punish Mr. Gould, if any mode of doing it could be devised. So when the town meeting came, they made out to muster thirty, of the two hundred voters in the town, to vote that bees were a nuisance. Well, the adjourned meeting came, and the result was as above stated.

Mr. Gould removed his bees and family from Wenham, early in the spring of 1868, several weeks before the trees blossomed, and when they did blossom very few bees could be seen on them, as not over twenty hives of bees were left in the town after Mr. Gould's removal. As a consequence, our fruit-growers expected a *very* large crop of all kinds of fruit; but in this they were disappointed. All our fruit trees blossomed profusely, and apple and cherry tree never looked better and more promising; yet I venture to say that there never was so little fruit raised in Wenham as in the year 1868.

Now, Mr. Editor, to make a long story short, this bee and fruit question was all a humbug; and was got up to injure Mr. Gould, because some of the "good (?) people of Wenham" supposed Mr. G. was making too much money out of it.

One reason why they found fault was this, that Mr. G. had only one acre of land to feed his bees upon. Now Mr. G. raised more fruit, with the exception of apples, than nearly all the rest of the fruit-growers; and all of this from the one acre of land. The season before they got up this "bee muss" Mr. G. was obliged to gather one half of his fruit before it was fairly ripe, to keep his trees from breaking down. Four barrels of Bartlett pears alone were thus gathered. Mr. Gould had most of his bees in the garden, among his trees. So you see, Mr. Editor, Mr. Gould not only got the honey but the fruit also.

I am inclined to think that we Wenham bee-keepers are not likely to be troubled again by the fruit-growers. I have not heard the thing mentioned since the trees blossomed last spring. Had there been a good crop of fruit raised in Wenham last season we should, of course not have heard the last of it very soon.

One man who has kept bees for fifty years, and lost them only the year before, made this speech in town meeting: "He said that he had seen the bees sucking the honey out of his manure heap, and did not believe his manure was so good for this reason. But he was willing that bees should be kept in town, if they were only fenced in so that they could not get out." Another man said that the bees made his fruit sour and wormy.

We bee-keepers had about made up our minds that the bees would be held responsible for the potato rot—a disease which troubles New England farmers very much.

I am sorry that we did not have a reporter at the town meeting to report all that was said and brought up against the bees. Frank Leslie's "*Budget of Fun*" would not begin to compare with it.

H. Alley.

Wenham, Mass.

[For the American Bee Journal.]

The Bee Plants.

I intended to state, long ago, that I found the *Cleome integrifolia* I procured from Mr. Terry, identical with the *Polinisia purpurea* which I had previously raised.

I think it will hardly pay to cultivate it so far north as this, because the weather after the first of August is so variable that flowers often fail to secrete honey.

I have never had much box honey stored after the 10th of August, excepting one year, 1867.

But as bees work on this plant freely all day and for five or six weeks, I should think it might do well further south.

J. L. Hubbard.

Walpole, N. H.

[For the American Bee Journal].

Several Things Considered.

Much has been said by different individuals, in various parts of the United States, about obtaining almost incredible amounts of surplus honey and enormous increase of bees. Now I wish to know much how those bee-keepers feed in the spring and summer in order to secure such gigantic results. I wish to know how many swarms they put in a hive, and how many times in a week the swarm is replenished with brood from other hives. I do not mean to charge my good brethren in bee-keeping with making false statements, for I believe that they get all the honey and swarms they have reported. But I am led to the belief that all that has been done to obtain such desirable results has not been made public, or else I am forced to the conclusion that they live in a far better locality for bees than the State of Iowa is; for I confess that I have never been able to secure any extraordinary product in the common way, that is, without resorting to the means already intimated.

Here, in the west, we commonly have cold, blustering, and wet springs. Consequently the bees lose the advantage of the first bloom, or at least a large part of it; and then the white clover does not fairly come in till the middle of June. The lindens, too, vary greatly in their period of blooming. In some seasons, in the uplands, they bloom as early as the 25th of June, or a week later in the flat lands; whereas, in other seasons, they do not bloom till the middle or latter part of July. Most of the native bees build no comb after the linden bloom closes; though the Italians, both pure and hybrids, still store some surplus. Of course there are some stocks in the spring that did not get through the winter with a sufficiency of population and stores. Few of these secure any surplus, and I shall not here speak of their condition, my object at present being to find out, if possible, what is requisite for the attainment of such eminent success as that referred to above.

I am pleased with Elisha Gallup's article in the December number of the Journal, page 111, on bee management. It is to the point, as far as it goes. I would like to have Mr. Gallup, or some one else, give us a full description of the honey extractor, as to its practical working, as there is none in this section of the State that I could examine. I believe it to be a good thing. I have often felt the need of something of the kind, even before I heard of the thing itself. I often wished that the honey could be got out of the combs without destroying them. Now, as the discovery has been made, and I have the geering to run the thing, I would like to make one, if it do not cost too much. I would also wish that Mr. Langstroth would tell the people through the Journal, what he charges those that use his hive; also the price he charges for individual rights. I suppose any one has a right to make and use it, and the firm has a right to collect their price for it.

As the last season was an awful poor one for bees to store a sufficient amount of the precious nectar, to keep from starvation the swarms made during the time the lindens were in bloom, there will have to be considerable feeding done the ensuing spring. I have tried various kinds of feeders, and as all of them failed to answer the end designed. I concluded to have one made entirely different from any recommended; and as I am the inventor of it, I have undoubtedly the right to brag of it just as much as I please. However I will merely say that I have one that knocks all other feeders in the shade. You will see a full description of it in the Bee Journal, under the inventor's own signature I can testify to its practical merit, and if others of my good fellow bee-keepers continue to recommend their strainers, I may be allowed to boast more of the feeder. James McMullen.

Oskaloosa, Iowa.

[For the American Bee Journal.]

A New and Curious Theory.

I guess it may be called Coxe's, as he is the only advocate of it I know of. It is this: That bees furnish the necessary germ, and requisite heat, to cause combs to grow similar to mushrooms.

If the case is stated right, I would like to know—

First. If all the wax, except some propolis used at times to strengthen the comb in special places, is not an outgrowth of the body of the bee, in thin scales of the thickness of the sides of the cells?

Second. What is done with the scales of wax, as the bees keep producing them, after the hive is full of cells, provided there is honey to be gathered, or they are raising young bees?

Third. Why cannot Mr. Thompson produce the necessary growth in his forcing house, as he has embryo comb in all stages, in all temperatures between forty-five and one hundred degrees, and yet no growth?

Fourth. Must the comb germs have the emanations of the bodies of bees, in the shape of thin scales of wax, to apply to the outer edge, or sides, or bottom? I understand the theory assumes bottom growth that pushes the rim outwards.

Fifth. Is the base or the rim of the cells the germ?

Sixth. Do not the combs cease to grow, when honey cannot be obtained in sufficient quantity to have some to store, notwithstanding the necessary temperature is kept up by the cluster of bees? J. M. Marvin.

St. Charles, Ills.

The *sting of a bee* is a beautiful little tube, formed like a telescope, through which the poison from the bag to which it is attached is injected. This very fine and delicate apparatus is barbed at the end, and when firmly fixed below by contraction, draws the rest of the sheath after it; and the sting, with its appurtenances, is so large in proportion to the whole body of the bee, and the detaching it from the other parts so seriously disturbs the internal economy of the insect, that the wonder seems to be that it retains any animation at all after losing it.

[For the American Bee Journal.]

Various Things.

One great want here, in northern Illinois, is *protection*—summer and winter. I have made a hive of Mr. Langstroth's common form—$18\frac{1}{8}$ x $14\frac{1}{8}$ x 10 inches deep in the clear, inside dimensions. This hive is double. The inner is half an inch in thickness, and the outer seven-eighths, separated by quarter inch cleats, so as to make air space ends, sides, and bottom. The top I have fixed for wintering as Mr. Langstroth proposed in the October number of the BEE JOURNAL, except that I prefer a board nailed on to the strips across the tops of the frames, instead of carpeting, &c., before adding the protection in the top of the hives.

I made the entrance of the hive as Mr. L. says, except that it is only nine inches long centrally, which I think is long enough for hiving and ventilation in summer, and affords better protection in winter. Against this passage I put, in winter, a piece of board which closes it, except that an opening is made centrally, $1\frac{1}{2}$ inch by $\frac{3}{8}$. The floors of outer and inner hive are matched, and the hive painted outside and inside with two coats.

I like this hive very much, and intend to make a good many like it, or similar, for the coming season; and what I want to ask is—

1st. Will it pay to expend this much on them for one's own use?

2d. How may it be improved? Is $\frac{1}{4}$ inch sufficient air space between the outer and inner hives? Is ten inches depth, in the clear, sufficient in this cold northern climate?

Now, Mr. Editor, you can put the above in the JOURNAL or not, as you think best, but I would like to know through the JOURNAL, or otherwise, the proper answers to the above questions.

On the sticks across the frames, I said I prefer a board (some $\frac{1}{2}$ inch thick) to carpet, &c. I do for two reasons—first, it makes a more perfect chamber; and, secondly, it gives less draft through the bees. I fear Mr. Langstroth's method of wintering is too *open*. My experiments on this point for nearly twenty years show that a very small entrance below, and a little circulation through the bees, are sufficient to keep the bees dry and healthy. The objections to so much openness are, first, the bees eat more; secondly, they breed less, and thirdly, they feel the changes of the weather more.

In one instance I cut a hole, 5 by 5 inches, and put glass over. In rolling up their clothing I learn their habits under various circumstances. They ordinarily *fill* the shoal chamber, hanging on the board, but not on the glass—thus making a hollow square almost to the depth of the chamber.

In another instance, I have, instead of board, *slats* far enough apart to put honey comb or candy between them. Over the form I put glass. The object is, first, to use it as a feeder; secondly, to discover the habits of the bees. They *fill* this chamber, and hang on the slats like a swarm in summer. When I close the front entrance for a few hours, they are less dense. When I open the honey-box cover about half an inch and leave it so some three or four days, to dry the upper part of the clothing, the bees recede from the chamber and draw together among the combs—showing that they are sensitive to the weather, though I *fill* the chamber with clothes to within an inch of the top.

I have transferred a good many swarms from the common and united them in the Langstroth hive, in December. It works to a charm. There is no brood in the way, and the bees behave admirably. They make the best of stocks. In one instance I put five into one. There was an array of slaughtered queens at the entrance next morning. I put the choice worker comb, that is true and cuts to advantage, in the centre of the hive; and as much as I want to of the rest, I put outside, to be rejected or used for something else next May.

You can wing the bees to where you want them from each piece of comb as it is cut out; or drive them with the smokepipe from one hive to the other. They never quarrel under such circumstances.

In fastening the comb, I use strips $\frac{1}{4}$ inch broad by $\frac{1}{8}$ inch thick, and a little more than the width of the comb-frames in length, and fasten by tying the ends together.

LEVI WHEATON.

POPLAR GROVE, (ILLS.) Jan. 1, 1869.

[For the American Bee Journal.]

Bee Hives.

MR. EDITOR:—I am much pleased with the JOURNAL since I have become a subscriber to it. I have several works on bees, but still see something new in every number of the JOURNAL. And as it seems to be a sheet of free speech, I send you a few lines for publication.

In the first place I agree with Mr. Davis in desiring diagrams and explanations of all hives. I will send you mine with full descriptions, as soon as I receive my cut.

On wintering bees there seem to be a great many different opinions. I think some of the writers, in the way they propose for wintering, require a great deal of work. As simple a plan as any I have seen (and no doubt a good one) is Mr. A.'s, on page 108 of the December number. My own plan, I think, is fully as simple. I have my summer stands with good roofs on, to shade my hives in summer. When winter comes, I board it down to the ground, except the front, a part of which is open. I do nothing to the hives, only when the weather gets frosty I open the ventilation, to keep the bees from sweating, which it does like a charm.

I have wintered bees for three years with success, not losing a swarm; and all my friends that are using my hive, winter in the same way, and I am safe to say with the same success.

There will be a great many of my hives in use the coming season. I have both the movable and stationary comb. Patented February 25, 1868, No. 74,810. I receive just as much benefit from the stationary comb bar, as the movable frame, and with as little trouble.

ALPHA, OHIO, Dec. 2, 1868. B.

[For the American Bee Journal.]

Mr. Kidder's Reply.

Mr. Editor:—I have noticed in the last three or four numbers of the Bee Journal, that there has been considerable said at my expense in reference to bee hives and queen bees.

With your permission, I will correct a misstatement that appeared in the December and January numbers, by our knowing friend, E. Gallup.

On page 107, of the December number, Mr. Gallup complains that the West has been humbugged by Kidder and others, in sending out queens for pure Italians that had but one stripe. As long as I have been in the business of raising Italian queens, which is near eight years, I don't know as I have ever reared one of the description he speaks of having one stripe. The purity of Italian workers may be known by stripes upon their bodies; but I was not aware that the purity of queens was so determined.

Out of the hundreds of queens that I have sent off by mail and express the past seven years, there has been but very little complaint, but what they were all right in regard to purity and their color light, approaching near if not quite to a gold color. And, aside from this, we have given our customers a warranty that the majority of workers from said queens shall have three distinct bands or stripes, and when such was not the case, we have furnished them with others free of charge. I have no recollection of supplying Mr. Gallup with queens, and I doubt very much that he ever saw a queen that was sent by me to any one else; and yet he seems to know all about them. I have received many complimentary letters from different purchasers, that our queens were superior to those furnished by Mr. Langstroth and Mr. Quinby.

In regard to my bee-hive, referred to by Mr. G., I will state that, in the suit he speaks of, there was no trial whatever. The young man Langstroth, has asserted on page 135 in the January number, what his father asserted several times before, that the suit in question was brought to a final hearing upon proofs and pleadings, &c. This I pronounce *utterly false.* For the benefit of the numerous bee-keepers, I will here state the facts of the case. There never has been, at any time or place, a judgment rendered against my hive, as an infringment, upon proofs and pleadings. In fact there never has been a contested suit in any court in the United States where my hive was pronounced *an infringement* on the so-called *Langstroth hive*, upon proofs and pleadings. The decision of the court at Utica, referred to by Mr. G. and Mr. L., as I said before, there was no trial. They took judgment by *default* and not upon testimony. And, furthermore, the expense of the court was paid by the plaintiff and not by the defendant. In this case against Charles Austin, the plaintiff or his counsel was never ready for a trial, unless it was at the time Mr. Austin did not appear; and after being baffled several times, the defendant deemed it advisable to pay no more regard to it, as it was not a suit for damages, and if they took judgment by default, it amounted to but little, as long as there was no regular trial. Mr. R. C. Otis, an agent for Mr. Langstroth, commenced proceedings against four other patentees, and myself amongst the number, for infringement on the Langstroth patent. All of these suits were withdrawn by Mr. Otis, and all costs paid by him, as I am informed. I know he paid all costs in the suit against me, and withdrew it.

I would further inform these knowing parties that the hive in question at that time, is not the kind of hive that I now use or sell, as the point at issue at that time was the particular manner in which the frames are arranged inside the hive. It was not upon the frame itself, nor was it upon any other part of the hive. I will also state that I now use a frame of a different construction, and its arrangement in the hive is altogether different from the one Mr. Austin had in his possession in 1863, and does not interfere at all with Mr. Langstroth's patent, nor any other man's patent.

K. P. Kidder.

Burlington, Vt., Feb. 11, 1869.

[For the American Bee Journal.]

Aphis Honey.

Mr. Editor:—I will give you my views of what some call honey dew; and its effects on bees. First, its history.

I have been acquainted with a dark-colored substance which the bees gather in the fall of the year, once in six years. It is gathered in the woods in August and September, some years in very large quantity in this section of the country. Its origin is from an insect that lives on the Beech trees, and perhaps on some other trees. It was quite plenty last fall, but the heavy rains in September prevented the bees from gathering as much as they would if the weather had been more favorable; though, as it was, they stored some in the boxes.

Its Effect on the Bees.

It does not appear to hurt them while the weather is mild; but the first cold spell in December generally brings on dysentery, which proves fatal to a great many colonies, and reduces others very much. Those that die usually leave an abundance of honey—sufficient to have wintered them, if it had been of good quality.

Why Does it Kill the Bees?

I will give you my theory. It is this. As this substance is not a vegetable product, I think there is no sugar in it, and hence is no proper food for bees. It has always proved injurious to them, ever since I first became acquainted with it, which is more than thirty years.

The Remedy.

Empty the honey as fast as it is gathered with a honey-emptying machine, and feed your bees with clover honey.

If any of your readers have had an opportunity to observe the periods of this insect honey, and the length of time between the periods, I should be glad to know what their observations are on the subject. Honey dew is not the right name for the substance which I have tried to describe. I always see dew as clear as distilled water, and should *just as soon expect to find a salt dew as a honey dew.*

Remedy for Bee-Stings.

I have found the following to be the best remedy that I have ever tried. First, extract the sting; then wash the part with cold water, rubbing it well for half a minute; then rub with a dry towel for half a minute more, then apply about one-fourth of a teaspoonful of spirits of camphor, and rub for another half minute.

Morris Smith.

New Salem, Ohio.

[For the American Bee Journal.]

In a private letter received from Mr. J. H. Thomas, he says—"I am much pleased with the Bee Journal. Would not do without it for three times its cost. I feel inclined to withdraw my correspondence from other papers, and write more for the Journal, &c., &c." "My sentiments exactly." *Good.* Don't let that inclination die out. We all ought to feel a pride in our own institutions, and if all of our old bee-keepers of large practical experience will contribute something of their views and experience to the columns of the Journal it will become still more interesting. Now, what shall we do to bring out Mr. Quinby, Mr. Langstroth, Mr. Baldridge, Mr. Marvin, Mr. Alley, Mr. Cary, Mrs. Tupper, and a host of others? Here, gentlemen and ladies, I will give you a very polite invitation to contribute some of your experience in bee-keeping for the Bee Journal; and if you do not accept the invitation, I do not know but I shall send Gallup after you with a sharp stick, to challenge you to open an ink fight on the bee question. I will freely give up my space in the Journal to more experienced pens.

E. Gallup.

Osage, Iowa.

[For the American Bee Journal.]

Red Clover and Italian Bees.

Numerous articles have already been written on the subject—some writers contending that Italian bees gather honey plentifully from this plant, and others maintaining the contrary. Possibly I may be able to submit some observations that will conduce to an elucidation of this seeming puzzle.

Red clover belongs to an order of plants yielding honey only in peculiarly favorable states of weather. Even the other clovers do not at all times secrete honey when in bloom. Hence when the largest fields of red clover are in blossom, but the blossoms do not secrete honey, it is of course impossible for the bees to gather any therefrom. But whenever the weather is favorable to the secretion of honey, and the nectaries of the blossom are filled therewith, these will be visited by the bees—not indeed by the Italians alone, but by the black bees also, though the latter will be the smaller number. On the other hand, when honey is not secreted in the blossoms, we shall not only see no bees upon them, but also no humble bees, no butterflies or other other honey-loving insects. Last spring the white clover in this neighborhood was not visited by bees before the 20th of June, simply because till then the blossoms contained no nectar. The same was found to be the case with Swedish clover, in several places last summer.

I will also notice a striking instance of Italian *versus* black bees. Last summer I had a field of late buckwheat close to my apiary, which yielded honey plentifully for some time. Though I had then only a few stocks of black bees remaining, the great majority of the bees visiting the buckwheat were blacks—the Italians finding at that time ample and more acceptable pasturage elsewhere, though at a greater distance. Whether this was red clover or some other blooming plant, I am unable to say; but know that they very speedily refilled the emptied combs returned to them. Buckwheat, too, belongs to an order of plants, yielding honey plentifully only at favorable times and on favorble soils—furnishing as far as I am aware, the largest supplies only on sandy soils. The only blossom which here yields honey on every kind of soil and season, is that of the Linden tree, though the quantity varies in different years.

In conclusion, I remark that our bees are wintering well here, being apparently healthy, and gratifying expectations of good results next summer. Hitherto the weather has been mild and fine.

W. Wolf.

Jefferson, Wis., Feb. 1.

[For the American Bee Journal.]

Extraordinary Swarming.

Mr. Editor:—Please oblige a subscriber by inserting in the Journal the following account of natural swarming that surpasses anything I have heard of in this country.

Last spring I had a hive of black bees, which produced an increase of fifteen swarms in the following way. The old stock swarmed May 4th, 10th, 18th, and 20th. These swarms were put in hives full of comb. The first or prime one sent off four swarms in May and June. These were hived and did well. The one that came off May 10th swarmed twice in June; the one that came off May 18th sent out two swarms; the one of May 20th one swarm. The old stock again swarmed twice in August, and gave me fifty pounds of honey. Twelve of these swarms stored honey enough to winter.

George Strickland.

Dayton, N. Y.

Unless they are hurt, provoked, or affronted, bees seldom make use of their stings.

THE AMERICAN BEE JOURNAL.

WASHINGTON, APRIL, 1869.

☞ The American Bee Journal is now published monthly, in the City of Washington, (D. C.,) at $2 per annum in advance. All communications should be addressed to the Editor, at that place.

We have devoted nearly all our space, this month, to our correspondents, though without exhausting our files. A large number of articles remain on hand, which shall have early attention.

☞ We are indebted to Mr. Woodbury, of Mount Radford, (Eng.) for the account, in our last number, of the first day's proceedings of the German Bee-Masters' Convention at Darmstadt. The proper acknowledgement was inadvertently omitted in "making up."

☞ A meeting of beekeepers will be held on the 7th and 8th of April, at the Board of Trade Hall, Jackson, Michigan, to organize a Beekeepers' Association, and to discuss matters pertaining to bee-culture. A cordial invitation to attend is extended, by the Committee of Arrangements, to beekeepers from adjoining States and from Canada.

Mr. Grimm, of Jefferson, Wisconsin, sent us a box of honey, gathered from red clover, last season, by his Italian bees. It had a slight pink tinge, and a peculiar, though not unpleasant, taste and odor. There seems to be no doubt that the Italians can gather honey from the blossoms of this species of clover, as even the common bees can do so, when it is growing in poor soil in a dry season. But how abundant the yield is, in ordinary circumstances, remains to be ascertained.

We are pleased to learn that the good people of Wenham, (Mass.) refused to sustain the town meeting resolution, banishing bees from their bounds. The marvel was that, in these days, such exclusion should be thought of or attempted anywhere; but, in view of the arguments advanced in its support by some of its advocates, of which a correspondent gives us a specimen, we may cease to wonder.

☞ A chemical analysis of the jelly with which the larvæ of worker bees are fed, was made by Dr. Dönhoff, about fifteen years ago. He found its principal constituents to be albumen and fibrine, with minute portions of wax and sugar—which latter he regarded as non-essentials, and as accidentally present. He judged the jelly to be an animal secretion furnished by a gland in the gullet, as pollen is never found in the stomach of the bee. This analysis was not considered altogether satisfactory or reliable; but we are not aware that any other has since been made.

Bees' Saliva.

Bees usually moisten the pollen or meal slightly with saliva, as they gather it, to enable them to form it into pellets. The salivary glands of the workers are very largely developed, and the secretion of saliva is rapid and abundant. This saliva has been regarded as an acid, but we incline to believe that it will be found to be an alkali. In comb-building it is obviously used to render the newly-produced wax plastic, and, at the same time, it probably gives to the wax its pure white color—precisely such as results from dissolving yellow wax in a solution of pearlash.

A further fact in support of this conjecture is this, that the alkalies readily decompose grape sugar (the chief constituent of honey,) producing *formic acid*, which is identical with the *poison of the honey bee.* If the saliva is an alkali, the production of the venom is easily accounted for.

Value of Pollen or Meal.

Our correspondent, Novice, is by no means singular in the opinion that a saving of honey is some way effected, when bees are supplied with meal in the spring, as a substitute for pollen.

Dzierzon says—"Much honey is undoubtedly saved, by means of pollen, in the preparation of jelly; for we see masses of brood maturing in the spring, without finding the store of honey much reduced, when bees are fed with meal."

Of meal feeding, Mr. Bartels says, in the *Bienenzeitung*, "It is always very beneficial when there is a scarcity of pollen, whether the bees use it for their own sustenance or for the nourishment of brood. Much honey is thereby saved."

In the spring of 1857, the Baron of Berlepsch fed to his 106 colonies about 360 lbs of flour, or, on an average, 3 lbs. 7 oz. per hive, and remarks —"I am satisfied that by this feeding my stocks not only became populous, but that an extraordinary saving of honey was thereby effected. When I commenced feeding meal, my hives contained but little honey, the year 1856 having been an extremely poor one, and I calculated on having to furnish at least 300 or 400 pounds of sugar candy to sustain the bees. But thenceforward their stores of honey decreased very slowly, and I found that only eleven pounds of candy were needed."

We have had no opportunity ourselves to investigate these matters, because our bees always procure pollen from natural sources so early in the spring as to render meal feeding unnecessary.

[For the American Bee Journal.]

That Bee Disease—Wintering Bees.

Mr. Editor ;—It may be gratifying to the readers of your Journal, to hear of one place where bees are *not* dying off, or taking wing by night for parts unknown (not as they did in Kentucky, but) as they did in the Louisville *Democrat.*

The season of 1868 was by no means a favorble one for bees in this section. In fact, it appears to be admitted from all parts of the country, that the spring and summer of 1868 were remarkable for the small amount of honey secreted in the flowers. Yet in this locality (Western Pennsylvania) we were able to secure some surplus honey and a moderate increase of colonies. This is true of the Italians—the blacks not doing so well. And what I wish to say is, our bees are not dying off. About the 1st of December I put one hundred and nine Italian colonies into winter quarters (a cheap structure built for the purpose); and on the 12th and 13th of February I replaced them on their summer stands. The 13th being a very fine day, with the mercury at from 60° to 65° F., they improved the occasion for a "good airing." The weather then becoming cold, I returned them again to their winter quarters, where they can pass in comfort this cold weather—the mercury at this date (March 5) falling to 8° below zero. I have not lost a swarm, and do not expect to lose any.

I have had some experience in managing bees in this locality, and have never known a case of foulbrood, or a stock of bees to die of disease, but have known very many to die of famine.

I had the privilege of examining the bees in one locality in Indiana last October, and while I could detect no indication of disease, I found a great destitution of stores—some swarms still alive, but not an ounce of honey in their hive. The stocks and swarms were very much reduced in number, caused, I have no doubt, by necessity compelling them to forage, and flying to great distances, as well as entering many forbidden places, such as cellars, kitchens, groceries, and returning no more. Also, by going forth when the weather was too cold for them to return. I have often observed my bees, during cool and cloudy days, when the buckwheat was in blossom, become chilled and drop by thousands on the sidewalks, fences, standing corn, leaves of trees, and in fact anywhere they chanced to alight, and their return would depend altogether upon the sun shining out during the day sufficient to warm them into activity.

And now, Mr. Editor, I wish to say in conclusion that, should you ever conclude to brush off the dust of the editorial sanctum and sally forth to rusticate in the country (which you ought to do—who seconds the motion ?) there is one little village nestling among the hills of Western Pennsylvania, in the beautiful valley of the Brokenstraw, on the line of the P. and E. R. R., where you may be sure of finding at least one latch-string out, around whose door the indefatigable Italians (with yellow tapering abdomens) are plying the busy wing in bringing in the nectar from hill and vale, through all the bright days of spring and summer.

Long live the American Bee Journal!

W. J. Davis.

Youngsville, Pa.

[For the American Bee Journal]

About that Bee Disease.

I concur with the editor of the Bee Journal that the disease is not likely to have been caused by the want of bee-bread. If want of bee-bread would cause it, my home apiary would have been destroyed before this time.

A careful examination of a number of colonies, a year ago last fall, disclosed the fact that my bees had not stored bee-bread of any account. The greater number of stocks had either none, or not over a few dozen cells of it. And this year all those colonies that continued breeding uninterruptedly to the end of the season, have not a particle of bee-bread. Yet they appear perfectly healthy up to this time—just as healthy as at any other season before ; but they have not commenced breeding yet, while stocks in my southern apiary, with plenty of bee-bread, have brood in all stages. In the month of March, last year, none of the stocks in my home apiary had more than a hand's breadth of brood, yet remained perfectly healthy.

But I once noticed something very similar to the reported bee disease. At the beginning of the month of October, 1861, my bees appeared to be very busily at work on something, coming back heavy laden—though I did not find out from what they were gathering. On the 15th of the month, I carried those bees into my house cellar, which is a good deal warmer than my present wintering cellar. A week later I went down to examine whether they had quieted down, when, to my horror, I found the bottom of the cellar thickly strown with dead bees ; and I heard and saw others continually coming out of the hive and fly off. I remarked to my wife that if the bees continued to die as fast as during the week just past, I would not have a hive left in two weeks. These bees appeared very large, the abdomen being greatly distended and filled either with thin fæces or honey. I tasted the latter, but could not detect any strange taste in it. I had no doubt those bees had died in consequence of the use of the honey then recently gathered. This honey, however, seemed not to have lasted long, or was speedily purified by the warmth of the cellar, for a week later the bees appeared to be perfectly healthy and quiet.

From the reported behavior of the diseased bees last fall, I should judge that they had gathered some unhealthy honey, and died from the use of it. I am confirmed in this view of the case by an occurrence in the year 1862. For about two weeks, in the month of June, in that year, my bees gathered a large amount of honey from honey dews, and the hives speedily became very heavy. One day, while examining the amount of brood in a hive that previously swarmed, I discovered a few cells of foulbrood, and became greatly alarmed. I immediately examined every old stock, and finding a few foulbroody cells in each hive, I feared I should loose all of them; but this was not the case. Basswood trees commenced blooming on the 8th of July, and continued about three weeks. The bees gathered a large amount of honey from this source; and on further examination, I could find no more foulbrood. A large number of those stocks are still alive, though I took up some forty of them last fall. I wintered them in the cellar, bottom side up, and they appeared to do very well till they commenced using the honey gathered from honey dew. They then seemed to be affected with the same disease from which my bees had suffered in the fall of of 1861. They flew out continually, with the abdomen greatly enlarged, and died. Out of over sixty colonies, nine died out entirely, and of about twenty the population was so greatly reduced that it took them until June to recover. Young swarms that came out while the basswood was in blossom were not at all affected by the disease, remaining perfectly healthy. I am entirely satisfied that honey collected from honey dew was, at least in this instance, the cause of all the evil.

Now, while I think I have discovered the cause of the disease with my bees, I have so far used no remedy. But should they again gather much honey from honey dew, I will drive or transfer every swarm into an empty hive at the time the basswood blossoms come in.

CAN BEES BE POISONED?

Some of my German bee books state that it can be done, and they state too *how* it can be done; but I would not recommend the *how*, lest some mischievous beekeeper should take it in his head to destroy his neighbor's bees, when his own are being robbed. But I know something that, if fed to bees, would make them foulbroody in three weeks' time. Yet I would not for any price communicate how it can be done; and sincerely hope that others who may know the secret will not disclose it.

A. GRIMM.

JEFFERSON, WIS.

[For the American Bee Journal.]

Markings, and a Query.

MR. EDITOR;—My bees are flying out to day as in the spring of the year. We have had a warm winter so far, and our bees have not been prevented from flying longer than a week at a time, and rarely more than three days.

Sometime ago I received from the author "*Kretchmers' Beekeepers' Guide Book*, which, although devoted to the interest of the Champion hive, contains a great deal of valuable information for beekeepers. His description of the Italian bee is the best that I have seen. On page 109, he says:—"The worker bees, if produced by a pure queen fertilized by a pure Italian drone, have the upper half of three abdominal rings of a bright yellow color, *the segment joining the abdomen to the thorax being the first.* When young, the body is covered with a delicate coat of hair, giving the entire body a light appearance; when older, this hair begins to wear off and the bee attains a glossy black appearance. * * * When filled with honey, or extremely distended from other causes, some workers occasionally show even a part of their fourth abdominal ring slightly marked." This description exactly suits my Italian bees, the queen of which I purchased from Mr. Langstroth last summer, and was assured by him that she is pure and purely fertilized.

All our bee authors tell us in transferring brood or queen cells from one hive to another, not to expose them *too* long to the sun or air, for fear they would be killed. But none of them tell us how long it will take to kill eggs or larvæ thus exposed. Do you not suppose that in a majority of cases where transferred queen cells are destroyed by the bees, it is because the inmates have already perished from exposure?

With an earnest prayer for the success of the JOURNAL, and any amount of sunshine for our dear little friends the bees, I am truly yours,

J. W. COLE.

ANDREW CHAPEL, TENN., Jan. 4, 1869.

[For the American Bee Journal.]

King Birds and Bees.

MR. EDITOR:—I saw in the BEE JOURNAL an article relating to king birds. Now, sir, I have seen the king bird catch worker bees, while these were gathering honey from white clover. I have seen them dart down and catch bees when they were on the blossom of the white clover. I also saw them catch bees last spring, before any drones had made their appearance. I shot one, and found worker bees in his gizzard, and I will shoot all the king birds that I see around my apiary.

There is another bird, smaller than the king bird, that destroys a good many bees.

Whoever does not believe let him go in the vicinity of white clover in blossom, where king birds are found, and he will witness the same facts as I have done.

R. MILLER.

ROCHELLE, ILLS.

[For the American Bee Journal.]

Corrections and Explanations.

In my description of the honey-emptying machine, on page 144, are some small errors which I wish to correct.

In "bill of stock," No. 3, should be *four* pieces instead of *three* pieces. No. 11, should be 7½ x 1¼ x ¾.

In the ninth paragraph, last sentence, insert "have a" between should and hole.

In the last sentence of paragraph 16, read *ears* instead of *ends*. These are made of strips of tin one inch wide, with double edges, looped and soldered to the outside and inside of the can. They project ⅜ of an inch above the top of the piece 10, and small wooden pins extending through these hold this immovably.

In the diagram substitute 6 in place of 5, just above the smaller screen.

I have found no difficulty in making the combs stay in place; but, if necessary, a small wooden pin would be found amply sufficient. It could be inserted in one of the posts.

J. L. Hubbard.

Walpole, N. H.

[For the American Bee Journal.]

Use of Camphor to Stop Robbing.

On account of the great number of stocks I kept in one cellar, I was compelled, on wintering them out, to remove only a portion of them in one day, to prevent the bees from mixing up too much. Those taken out first were consequently prepared to go to work when those last removed were brought out, and they attempted to rob the latter. When this was discovered, they had already got a good start on some of the stocks; and I was puzzled how to arrest the robbery. At this time I had purchased a small parcel of camphor for some other purpose, and it struck me that I might stir up the sluggish and inactive stocks which suffered themselves to be robbed without resistance, by inserting a small piece of camphor in the entrance of their hives. I immediately did so, and was not a little pleased to find that the effect was to frighten the robbers, and to arouse the inmates of the hive to vigorous resistance till they drove off every strange bee.

A week later, when I wintered out the bees of my northern apiary, (all of which were taken out in one day), one weak colony was violently attacked by robbers. I pushed a piece of camphor through the entrance, and had the pleasure of seeing the same result. Attempts at robbery had entirely ceased next day, although this colony proved to be queenless on examination about three weeks later.

I trust this hint may be of service to some of the readers of the Bee Journal.

A. Grimm.

Jefferson, Wis.

[For the American Bee Journal.]

Ventilating the Langstroth Hive.

The movable comb hives which I got up after the Langstroth model, have no ventilating apparatus in the rear; but I ventilate those hives more effectually than they could be by the Langstroth ventilator.

The caps or cover boxes of my hives are half an inch longer than would be necessary to cover the hives; and consequently allow the honey-board to be moved towards the front sufficiently to open the hind end of the hive ¼ inch. Taking away the entrance blocks, the air passes between every frame from the bottom to the top and out at the rear end. The cover box is then lifted up one inch at the back end, and an entrance block put between it and the hive.

Should the cover boxes not allow a forward movement of the honey-board, two ¼ inch thick sticks put between it and the hive, would have the same effect. Bees in hives so ventilated did not lay out in the hottest weather last summer.

Jefferson, Wis. A. Grimm.

[For the American Bee Journal.]

Singular Case.

About the beginning of the month of July last, I caged a queen bee for the purpose of raising another. In the hurry of business this queen was overlooked for nearly a month. After basswood blossoms were over I happened to examine that hive again, and found the queen alive, but both her wings were missing, and a young queen at liberty, which had just commenced laying. I concluded to divide the stock for an experiment. When this was done, I set the caged queen free in the queenless part. About ten days afterwards I examined both stocks again, and in the hive in which I had placed the wingless queen, I found a young queen just hatched, and several queen cells torn open, together with a large amount of brood of nearly all ages. Not finding the wingless queen, I concluded that she had been superseded by the workers. About a week later I re-examined the hive, and found the young queen very slender and apparently unimpregnated, but the combs contained eggs, larvæ, and sealed brood in plenty. After a careful search, I discovered my wingless queen on a brood comb, and immediately removed her. Two days later the young queen had commenced laying. All this, however, would not have presented anything strikingly curious to me. About nine days later, I happened to think of this stock of bees, and concluded to take another look inside. I found the latter queen laying, with a large amount of larvæ and sealed brood, and a number of sealed queen cells. I removed the queen and gave her to a queenless colony; but she was probably killed, as I found no trace of her afterwards.

Can any one explain the singular behavior of this stock of bees? Were there two parties of bees in the hive, and did each maintain its independency? Or was the last taken queen imperfect too, though not showing it in her appearance.

A. Grimm.

Jefferson, Wis.

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AT TWO DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

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[Translated for the Bee Journal.]

Convention of German Beekeepers, at Darmstadt, September, 1868.

[FURTHER AND FINAL SKETCH.]

On the morning of the second day, after a somewhat protracted preliminary discussion, it was decided by the Convention that, as compensation for making public his method of securing the pure fertilization of queen bees, the Rev. Mr. Köhler was entitled to receive the contributions of German beekeepers, deposited in the hands of the Editor of the *Bienenzeitung*. There was much difference of opinion among the members about this matter ; and, though a large majority voted to authorize the payment, several protested strongly against the decision.

INTRODUCTION OF QUEENS.

The President then presented a letter from Mr. Uhle, communicating a process for the safe and speedy introduction of queen bees—which is substantially as follows :

Remove the queen of a colony, and feed the bees with diluted sugar water freshly scented with grated nutmeg. When the bees have freely partaken of this, dip the queen intended to be introduced into the scented solution, and immediately set her at liberty among the bees on a brood comb.

This should be done in the evening, just before dusk, because the bees are then naturally more disposed to accept an offered stranger than earlier in the day; and because the odor of the scented sugar water might attract robbers, if fed either in the morning or at noon.

The queen is to be dipped into the scented sugar water, primarily to impart the same smell which the bees have acquired from it ; but likewise to tame and subdue her, so that she may not act wildly and try to escape when introduced among the bees, but be as it were constrained to accept the caresses and homage of her new subjects.

When introducing a queen, she should not be seized or held by her wings, but be grasped gently by the thorax with the thumb and forefinger. A queen held by the wings is apt to struggle and rush rashly among and over the bees when let go, and thus deporting herself as a stranger, she incurs the risk of being regarded and treated as such by the bees, and may be either mutilated or killed.

If the bees are in top-opening hives, the scented sugar water may be poured directly into the cells of one side of every partially empty comb, and the feeding and scenting of them may thus be promptly effected, even while the operator is searching for the queen intended to be removed.

This process of course admits of variations and modifications, such as will readily suggest themselves to intelligent beekeepers.

The fourth and fifth questions in regular course, were not taken up for discussion, as their proposers did not happen to be in attendance.

The sixth question, relating to the production of hermaphrodite bees, elicited some remarks from Prof. Leuckart and Mr. Dzierzon, which we pass over, as the subject is one of little importance in practical beeculture. The consideration of questions 7, 8, 9, 10, 11 and 12, was likewise postponed by the Convention, from want of time, or for other reasons, and the thirteenth question was taken up. This was an inquiry whether experience had demonstrated the superior value of movable combs in beeculture, and what influence the invention of the honey-emptying machine was likely to exert on this pursuit.

Dr. Pollman remarked that the first branch of the question could no longer be properly brought up for discussion in a general convention of beekeepers, inasmuch as bee culture had already reached a point in its progress far in advance of the position which it occupied when movable combs were introduced—and solely because of such introduction. The subject was no longer debateable, since we have on every hand the evidence of facts showing what can be accomplished by the use of such means, and what is unattainable without them.

The honey-emptying machine was highly extolled, as the complementary invention which placed within reach of the beekeeper a supply of empty combs, which the movable comb system had made a desideratum; and as conducing to the further improvement and advancement of practical beeculture. The Rev. Mr. Köhler remarked that as the introduction of movable combs was an improvement in the ratio of *two* to *one*, so the invention of the honey-emptier might be considered as a further advance in the ratio of *four* to *one*.

A doubt having been expressed whether the machine could be used for extracting either candied honey, or the tough, viscid honey gathered from blooming heather, Dr. Pollman stated that this could be done, the difficulty having been overcome by a young man residing in his neighborhood, who immersed in tepid water the combs containing such honey, which then readily yielded to the action of the machine.

The inventor, Major Von Hruschka, being present, stated that he deemed it practicable to extract such honey by the machine without immersing the combs. He had made some recent improvements in his invention, and among them was an arrangement for warming the combs by the use of a spirit lamp, which enabled him to operate the machine in cool weather, and even in winter; and he doubted not that he could thus extract candied or viscid honey. By a further improvement now in progress, he expected to be able to dispense with the uncapping of the cells; and thus a troublesome and tedious operation would be got rid of. Major Von H was requested to report the results of his experiments in the *Bienenzeitung;* which he promised to do if he succeeded in rendering the uncapping unnecessary.

Making Artificial Colonies.

Question 14 regarded the best mode of making artificial colonies.

Dr. Pollmam said he would communicate his process. "I have only one apiary," said he, "though I make artificial colonies. I usually make them with the queen. I take from a populous colony several combs with brood, on one of which the queen is seen. I transfer these to an empty hive, add some empty combs, and set the hive on the stand of the parent stock, removing the latter to some other part of the apiary. If this is done when the weather is fine and while the bees are flying briskly, we may feel assured that before night all the old bees will have left the parent hive and joined the new colony. This latter has the queen and a supply of empty combs in which she may at once proceed to deposite eggs and the old workers may forthwith store honey. The parent stock, too, is speedily recuperated from the brood it contains, which is maturing from day to day; and as in the best days of summer the queen lays from 2,000 to 3,000 eggs daily, a corresponding number of bees will issue daily, and thus speedily repopulate it, though all the old bees that leave fail to return. In the course of a week it will have recovered its normal number, and resume its pristine activity."

Mr. Hempel remarked that, with some modification, he regarded the process just described as one of the best in use. "I have," said he, "for some time past, made my artificial colonies mainly in this manner, though for convenience I make some changes. I do not remove the parent hive, because in some cases that would be difficult, if not impracticable; but I remove all the combs. That is, I transfer all the combs from the parent stock to an empty hive, catching the queen and returning her to the old hive, and placing her among the bees remaining there. All the bees which had previously flown out, will speedily return to the parent hive, and, with those remaining there, soon constitute a strong swarm, which I am careful to furnish with plenty of worker guide comb. An artificial colony thus made will build as freely and rapidly as a natural one. The transferred stock, too, placed on a new stand in another part of the apiary, though the bees cease flying for a few days, will thrive satisfactorily, having a store of honey, and nearly all the young bees, with plenty of maturing brood from which its numbers will be rapidly reinforced. When old stocks thus treated are as populous as they should be to justify division, artificial colonies can in this way be best and most easily made, no second or distant apiary being required."

Mr. Dzierzon observed that it was hardly possible to say which is the most unexceptionable mode of making artificial colonies, as, in every case, much depends on the kind of hive employed and on various attending circumstances. "I have," said he, "several objections to the mode just recommended, by which the combs are transferred and the older bees return to their late home, uniting with the artificial colony there, which retains the queen. I have learned from experience that a queen so situated is apt to be killed by some of her own bees, returning from the new location on the second or third day. The most advantageous mode unquestionably is that which most closely resembles natural swarming; namely, driving or drumming out, when the driven swarm can be sent to a distant apiary. If this cannot be done, other modes must of course be resorted to, such as that proposed by the second speaker, as we then have the queen and bees together immediately, and need not wait for a gradual accession of numbers to constitute a colony."

Mr. Hempel remarked that, of course, he made his artificial colonies only on days when the bees were flying briskly, when assuredly very few old bees will remain with the transferred stock, because the absence of the queen causes alarm and excitement among them, inducing them to leave and return to their old stand on the same day. Long as he had practiced this method, he had never lost a queen thereby.

Form and Size of Hive.

Question 15. What is the preferable form and size of a hive—more especially of the brooding apartment? Mr. Klipstein, who had proposed this question, said that reasons deduced from physical laws had, on a former occasion, led to the conclusion that a globular form of hive, or some near approximation thereto, furnished the most suitable and best brooding apartment. To restate those laws and recapitulate the arguments then employed, would be out of place here. But there are certain propositions which, though quite correct in theory, must necessarily undergo various modifications in their practical application. "Though I have employed the term brooding apartment here," said he, "the gist of the question, from the very nature of the case, involves the whole wintering space required by a colony, for on the form and dimensions of that, in combination with the structure, internal and external, of the other portions of the hive, will the permanent prosperity of the colony ultimately depend. Hence the wintering space has an important bearing on the brooding space, because its size and adaptedness chiefly determine how early brooding will begin in the latter, and to what extent it will be carried, before the commencement of spring. This of course refers mainly to colder districts and the winter season. In milder districts and during the warmer seasons, the size and form of the brooding space is of much less importance." Mr. Klipstein then proceeded to discuss the subject of size and form of hive from this point of view, and with reference mainly to the assumed requisites, and concluded by stating as the result of his investigation, that for safe wintering, early and extensive brooding, ease of management, and suitable storage room, a hive should be ten inches square in the clear, or nearly so, and at most fourteen inches high. In all this, doubtless, Mr. K. had reference to the district of country in which he resides, intending that his figures should indicate the proportional dimensions of a hive presenting a square cross-section, and preserving the most attainable approximation to the globular form—his ideal of completeness.

Mr. Dathe stated that formerly, while residing in Saxony, in a district where fall pasturage is scarce, he used hives ten inches square and fifteen inches high. But when he removed to Hanover, he found that such hives were too large for profitable bee culture there, as the bees swarmed much later from them, and then more frequently than was desirable; and he came to the conclusion that a medium sized colony, as being less prone to swarm in summer, would be preferable. The result of experiments in this direction showed that smaller sized combs were more rapidly built and more speedily filled with brood, and that the bees swarmed earlier in the spring from such hives. He therefore adopted reduced dimensions, making his hives nine inches square and fourteen inches high, in the clear. Whether these dimensions were well suited for districts having more ample spring pasturage, he would not undertake to say, leaving that to be ascertained by beekeepers residing in such districts.

Dr. Pollman said that on the Lower Rhine, where he lived, frames nine inches broad had been commonly used heretofore; but that of late frames ten or eleven inches broad appeared to be preferred. Shallow frames, too, had been discarded, some practitioners now making them sixteen inches high—which he regarded as running to the other extreme.

Mr. Köhler remarked that Mr. Klipstein was correct in regarding a body approximating a globular form as losing least heat by radiation. But that is not the sole requisite in a bee hive. Other considerations likewise demand attention. The material used in the construction of a hive is one of these. This may be of such a heat-retaining quality that an excellent domicile for bees may be made therefrom, though in form it be an ill-adapted structure. It should, furthermore, be borne in mind that the heat-retaining property of a hive depends not so much on the quadrangular form of its cross-section, as on the number and due length of the interspaces between the combs, in which the bees dispose themselves. The more we increase the breadth of a hive, the more, under like circumstances, will we decrease the number of interspaces and extend them in length—thereby making the hive really colder, so far as the bees are concerned, though in other respects it may seem to be rendered warmer. Again, a hive of bees is not merely a body which has absorbed a certain quantity of heat, and diffuses it again. It is likewise a continuously heat-generating body; and the heat thus generated flows mainly upward, in accordance with a simple natural law. Hence, if we would construct a hive on proper principles, we must introduce the greatest possible number of interspaces, and arrange that the bees in consuming their stores may move regularly upward, always finding a stratum of warm air overhead.

If I am now asked what the average dimensions of a hive should be, I can only reply that that depends much on the amount of bee pasturage commonly available, in the given districts where the hive is to be used. In one district, large and populous colonies must be provided for and maintained, if any surplus honey is to be secured. In another, such large colonies are objectionable, because there the pasturage usually available demands a different mode of management, and renders hives of a different construction indispensable. The point, therefore, on which the question hinges among established apiarians, seems to be this—are we to pass over from the use of apparently too small dimensions to larger ones? or, as the converse may be, from seemingly too large dimensions to smaller ones? I, however, regard it as of doubtful expediency in any case, for a beekeeper who has already in use a number of hives of uniform size, to make a change either way—thereby introducing hives of varying dimensions in his apiary. In large establishments this may not be so objectionable; but he who operates on a small scale only, will encounter so many difficulties and annoyances from such diversity of dimensions, as will more than neutralize any advantages derived or expected from the change. He, however, who is just starting an apiary, if residing in a district where bee pasturage is ordinarily abundant, though of brief duration, will do well to adopt hives with frames not more than eleven inches long; and if his district furnishes less abundant though more protracted pasturage, frames not more than nine inches long will be found preferable.

Mr. Hempel said he uses bars exclusively instead of frames, and the experience of years had satisfied him that, for his purposes, hives ten inches wide and twelve inches high were the most suitable, in his district. He had formerly used hives only ten inches high, but his bees wintered badly in them, as they could not store sufficient honey overhead for winter consumption, and were consequently constrained to lodge and move along the sidewalls. Higher hives were therefore to be preferred; and last summer he could have wished that his own were somewhat higher than they are. The bees having stored up honey very abundantly, have so largely encroached thereby on their usual wintering space, as to reduce it to a minimum—a result which may prove injurious to them.

Mr. Deichert remarked that in assigning dimensions, Mr. Klipstein appeared to have reference exclusively to single hives. Where double hives and pavilions are used, some modification will be indispensable. In these the bees, during winter, lodge against the common partition, and great width of chamber would consequently be objectionable, especially if containing small colonies; because in winter much vapor would be condensed in the vacant spaces, and during a cold spell the bees could not reach the honey there stored. In pavilions, therefore, and in double or twin hives, a reduction of breadth and an increase of height will be advisable. When determining the dimensions of his own hives, he had been governed by the experience of Mr. Dzierzon, and adopted nine inches and a half for their breadth, and fourteen inches for their height. In such hives his bees had uniformly wintered well.

Question 19 referred to the expediency of holding a honey mart annually, in connection with the General Convention of Beekeepers; and inquired what arrangements would be needed for that purpose.

Mr. Hopf, who suggested the project, appeared to be its sole advocate. He conceived that the advance and the increasing importance of bee culture made it desirable that some increased facilities for the disposal of its products should be provided. Only one mart for honey existed in Germany now, and that was held annually on Maundy Thursday in the city of Breslau, at a time consequently which is inconvenient for those who use movable comb hives, as their honey is ready for market in July, August, and September. The annual meeting of the Beekeepers' Convention occurs at a more suitable period, and a mart conducted under its auspices would lead to extensive sales at fair prices, and thus create increased attention to this fascinating pursuit. The proposition however did not meet with encouragement, and the Convention proceeded to consider one of the deferred items:

Question 11, which was an inquiry whether the heath bee of Germany is a distinct race, or a mere casual variety of the honey bee. Prof. Leuckart contended that it was not in any respect essentially different from the common kind, and that its peculiar characteristics or apparently distinguishing qualities are due solely to local causes. His view was sustained by Mr. Dathe and Dr. Pollman; but a communication from Mr. Gravenhorst (who was unable to be present) was read, in which the claims of this bee, to be regarded as a distinct race, were fully set forth and ably discussed. What primarily called his special attention to these bees, was the circumstance that when movable comb hives were first brought to his notice, and he attempted to use them, he failed of success. For this failure he could not account, inasmuch as he had followed the instructions of the ablest masters, and was fully convinced of the superiority of the hives and the system. But later, when he had opportunity to see and compare these bees with others brought from distant sections of the country, the conviction was forced on him that the heath bee was really a distinct race. He then stated his reasons for this belief, in an essay published in the Hanover *Centralblatt*, in the spring of 1868; and the Baron of Berlepsch subsequently expressed his concurrence in this belief, in a communication sent to the *Bienenzeitung*, saying *inter alia*, that "in form and coloring, that is, zoologically viewed, the heath bee is entirely identical with our common bees; but she possesses some such characteristic differences as entitle her to be regarded as a *distinct race*."

These special peculiarities of the heath bees, Mr. Gravenhorst finds solely and wholly in a more decidedly impressed disposition to swarm, and its correlative consequences. The chief points are—

1. Young queens will leave with and accompany a swarm, like old ones, even when the hive is not yet half filled with combs.
2. Young queens will swarm even in the same year in which they are reared.
3. If all the queen cells but one be destroyed on the ninth or tenth day, the young queen will, in ninety-nine cases out of a hundred, swarm out with a portion of the bees—leaving the parent stock queenless. This is an essential feature, according to Mr. G., to whom it was an interesting sight last summer—when all the native queen cells had been destroyed in a number of his colonies, and maturing Italians or common queen cells inserted—to find the bees swarm out in due time, but speedily return again, because the young queens of these two races refused to accompany the swarming multitudes. So certain was the result in every instance, that he finally ceased to pay any attention to these demonstrations, well knowing that the seceders would surely return home.
4. In strong colonies, heath bees are prone to build drone combs, even when they have young queens.
5. The heath bees prefer dwelling in small colonies.

These five points, especially the first four, Mr. Gravenhorst conceives may fairly be regarded as presenting peculiarities, justifying the conclusion that the heath bee is a distinct race.

Without expressing any opinion on this subject, the Convention took up the next regular question.

Question 17. Are railroads used by apiariaus in aid of their businesss? Might they not be more extensively used? And how?

Mr. Dzierzon remarked that this question had no direct reference to beeculture as such; yet, if the business is not to be prosecuted for mere personal gratification, but become, through its products, an important branch of national economy, beekeepers must strive to make it yield the greatest possible profit. It must be made a mercantile business, the beekeeper seeking to make merchandise not ouly of his honey and wax, but of his bees and queens likewise. In this view, to aid in rendering beeculture profitable, railroads might be used with advantage for the transportation of stocks from one district to another, from places where pasturage is exhausted to others where it is just beginning to abound. Colonies might also be sent from districts plentifully supplied, to others where they are still comparatively scarce; and a lucrative and mutually advantageous traffic be thus originated.

Mr. Dathe stated that, in Hanover, railroads were already much used for the transfer of colonies, in the spring from the yet unproductive heaths to the marshy districts where early flowers are in bloom. Again, in the fall, colonies are sent "by rail" to the heaths, from districts which have ceased to furnish supplies; and thus railroads facilitate communication, in this particular, between sections which previously had no intercourse. More still might be accomplished in this way, if the railroads passed through or led directly to honey producing districts. But such is not the case in every instance, and where wagon carriage must be resorted to, for the transfer of stocks from the line or the terminus of a railroad to the hillsides or villages where the coveted pasturage is found, the expenses necessarily incurred leave a narrow margin of profit. Again, pasturage is not equally good every year, even in the same districts, and disappointment and loss sometimes await the "enterprising" beemaster, who has spent time and money in transporting his bees. Thus, though he had himself to transport his stocks only one mile, the cost incurred last season was not compensated by the returns.

Mr. Geilen said that he annually sent his bees twenty-five miles by rail, safely and cheaply. The agents do not hesitate to receive stocks as freight at moderate charges. The cost would be still less if a number of beekeepers were to unite and hire a car in common. Loading and unloading would then not have to be hurriedly done, while mutual assistance and supervision would prevent damage or loss. He had heard it stated that movable comb hives were not adapted for transportation; but his own experience satisfied him that this is not correct. If the surplus honey boxes are emptied, the the entrances closed by perforated tin slides, and the hives properly placed and secured, no misgivings as to the result need be entertained.

The President now remarked that as the day was far spent, he would suggest that the consideration of the remaining questions be postponed. It had not been intended, when so large a number was proposed, that all of them should be discussed at this time. Those not now disposed of, might be taken up by the Convention next year.

This Convention—the fifteenth—comprised three hundred and eighty-four members. Of these fifty-three were exhibitors; and twenty-four prizes, amounting to two hundred and fifty florins were awarded by the committee.

[From the Bienenzeitung.

Pure Fertilization of Queen Bees.

The process for securing the pure fertilization of queen bees, recommended by Köhler and Dathe, which requires that the hives containing the queens and drones should be placed in a dark cellar several days, then replaced on their stands and opened in the evening, when common drones are no longer flying, is certainly an important advance in practical beeculture. Nevertheless, it has some objectionable features. That it involves some trouble is undoubtedly true; but that is not properly a matter for complaint, because the bee-culturist must never be unwilling to incur any reasonable amount of trouble in the prosecution of his business. A more material objection is found in the fact that some beekeepers, though they have gardens, have no cellars suited for the purpose; and that where large bee pavilions and double or twin hives are used, the process is literally unavailable.

The method which I am about to communicate differs from the former in this, that it does not require the removal of the hives from their stands, is available with every description of movable comb hives, is convenient and easily practicable everywhere, and is altogether certain in its results.

It is presupposed that every beekeeper engaged in rearing Italian, Egyptian, or other queens, knows the day on which the young queens will leave their cells—a knowledge which is presupposed likewise when the Köhler or Dathe process is employed. By careful observations made by the Baron of Berlepsch, it has been ascertained that young queens do not leave their hives to meet the drones before the fifth day after emerging from the cell; and the eighth day may be assumed as the period of full maturity. On that day, if fair and mild, they will certainly leave the hive, if they have not previously done so. This fact, stated already by Dzierzon, I have found verified in numerous instances; bad weather alone causing a postponement of the excursion. Therefore, to guard against anticipation, on the fourth or fifth day open the hive containing the young queen, search for her, and confine her under an open-base wire gauze cage on the comb on which she is found, pressing the edges of the cage into the comb fully to the septum or middle partition. To confine her earlier might impede or prevent her perfect development. I prefer using the kind of cage mentioned, because the queen has then the comb for a foothold while she remains confined, feels more contented and at ease, and finds herself at once among the workers when liberated by simply lifting the cage. But a still better mode of confining her is by means of a frame covered with wire gauze, and made to fit the hive closely both front and rear, and touching alike the honey-board and bottom. The comb on which the queen is found, with the bees thereon, is removed to a part of the hive having no communication with the entrance; another comb, with bees and honey, is set by its side, with the usual interspace; and the gauze-covered frame is then inserted between these and the rest of the combs. The queen is thus kept confined among workers, without restraining her personal liberty; and the bees in other portions of the hive, conscious of the presence of the queen, will remain content and prosecute their labors with customary assiduity, and usually without starting queen cells—as they would do if a close division board were inserted.

Three or four days thereafter, on the eighth day of the young queen's age, or, if the weather be unfavorable, on next fine day, in the evening after the common drones have ceased to fly, open a hive containing pure drones of the desired race, take out one or more combs on which drones are congregated, carry them to or near the hive in which the young queen is confined, and set them obliquely on a bench or stool. The drones will soon take wing, and hover about the place. Now open the queen's hive, take out the comb on which she is confined, liberate her and set the comb obliquely on the alighting board in front of her hive. In a few moments, the queen, attracted by the humming of the drones, will take wing and quickly disappear, but usually returns in about fifteen minutes, and enters the hive, to commence ovipositing three days later.

As soon as the queen leaves, the combs should be replaced in the hives from which they were respectively taken, and these properly closed.

By this process the pure fertilization of the queen bee is as completely under control, as that of any domestic animal whatever.

From the following occurrence, interesting in various other respects, it would seem not to be necesaary even to set the comb on which the queen is, at the entrance of her hive before she takes flight. On the 10th of October, 1867, I received from Mr. Vogel a beautiful Egyptian queen, and introduced her in a populous colony. I may here state also, in passing, that I had confined the old queen of this colony, in a cage six inches long, on the 24th of August or forty-seven days previous. The bees nursed this queen carefully; built no queen cells (which they rarely do in the fall, if the queen is caged); the queen seemed quite healthy when I removed her; and the bees showed the usual evidence of uneasiness and concern, when she was taken away, and refusing for several days to accept the Egyptian queen introduced in her stead. The colony occupied one of the compartments of a six-chambered pavilion; passed the winter in good condition; and by the middle of May contained Egyptian bees exclusively, with very many beautifully marked Egyptian drones.

A comb with drone brood was taken from this colony on the 20th of June, 1868, and given to an after swarm of common bees from which the queen was removed shortly after. On the 6th of September, there were no longer any common drones in my apiary, nor in any other in my neighborhood. I had reared Egyptian queens in several nuclei, and deemed it needless to confine them at this late period, as pure fertilization would follow if they were left at liberty. In one of these nuclei the young queen was hatched on the 20th of August; but from the 27th of that month to the 5th of September inclusive, the weather was so rough that no drones were seen flying. The 6th was a splendid mild day, and I concluded to examine the nucleus to ascertain whether any eggs had been laid by the queen, now seventeen days old. The comb case in which I usually suspend combs on such occasions, was standing some eight paces distant from the nucleus, in the rear of a large bee pavillion from which bees were flying in great numbers; and as it was heavy and inconvenient to move, I preferred carrying the combs there after examination, where they could be covered to protect them from robbers. Finding no eggs in any of the cells, I was about to return the combs; but re-examining one of them while standing at the comb case, I saw the queen moving among the bees. But, apparently attracted by the humming of the drones which were then flying in multitudes, she took wing at that instant and flew away, unaccompanied by any of the bees. I immediately returned the combs to the nucleus, closed it, and placed a trusty assistant in front to watch the entrance, and note the return of the queen, if she came back. This was at three minutes past one o'clock. The assistant was instructed to close the entrance, whenever he had occasion to turn his eyes from it, so that the queen could not enter unobserved. In about fifteen minutes we saw a cluster of drones passing about twelve feet overhead, among which we supposed the queen to be. It passed rapidly, and disappeared. We continued to watch for three quarters of an hour, and as she did not return, we gave her up as lost, concluding that she had been unable to find her way back. I regretted the more to lose her as she was a beautiful bright yellow queen. We now engaged in other work about the apiary, till near two o'clock, when our attention was attracted by an unusual excitement among the bees in front of the nucleus. The bees were returning home in crowds, though the sky was entirely unclouded. Conjecturing that the missing queen was at hand, we resumed our watch, and soon after saw her hovering in the air in a few feet above the hive. In a moment she alighted at the entrance, attended by a crowd of bees, and promptly entered the nucleus. This was at five minutes past two, and she had therefore been absent one hour and two minutes. Twelve days later, on the 18th of September, I found large larvæ in the cells, and capped brood on the 21st. The queen had evidently been fecundated on the 6th.

We were surprised to see so large a crowd of bees accompanying her on her return, as she was not attended by any when she left. Did these bees find and gather around her while she was yet abroad at a distance? Or did they merely recognize her in front of the stand on her return, and join in welcoming her home? Though she was absent more than an hour, the latter conjecture seems to be the more probable one.

That the queen was able to return safely to her hive, though she had flown from a comb distant eight paces from it, may be accounted for by regarding the large retinue by which she was accompanied on her return, as formed by the bees which discovered and recognized her, for the purpose of conducting her to her native home.

Dr. Preuss.

Dirschau, Oct. 18, 1868.

[For the American Bee Journal.]

Querist's Questions Answered.

[American Bee Journal, vol. 4, page 108.]

Querist desires to have some questions answered. I should like to try. It has long been my intention to write occasionally for the American Bee Journal, but my poor husband's illness prevented me hitherto. He is still lame, and requires great care.

Question No. 1. Some beekeepers take the position that *natural swarms will gather more honey, build more comb, and have more brood* during the first week after they are hived, than *artificial* ones. Is this true? and if so, why?

Answer. Experience teaches us that natural swarms, as a rule, will gather more honey, build more comb, and have more brood during the first eight or ten days after they are hived than artificial ones. The reason is, that if the artificial swarm has not been made by a first-rate bee-master, accustomed to pay attention to everything, it will almost always get comparatively too many young bees—that is, bees which are not yet sixteen days old. Now, bees in the first sixteen days of their lives attend only to *in-door* work; and thus it is evident that, as there are not enough old bees to do *out-door* work, there is not as much honey gathered as by swarms which contain the just proportion of old and young bees, as natural swarms always do. With this the progress of comb-building stands in close connection. If there is but little honey gathered, but few combs will be built and very little brood raised, for brooding keeps pace with building. Another reason is that the artificial swarm is generally placed too near its old standing place, and consequently, during the first few days, many bees return to their old home. If you try to make an artificial swarm, by driving the queen and a number of bees out of a straw hive, add thereto outlying bees swept off from the front of other hives, and carry it about two miles from its old stand, *such artificial swarm will not be inferior to any natural swarm equally strong.*

Question No. 2. Suppose we have, at the honey harvest, two colonies in the same apiary, each having 20,000 or 30,000 bees—the same number of old and young bees—the same amount of worker and drone comb, a fertile queen equally prolific; the same quantity of honey and bee-bread, in the same style of hive, managed alike in every respect, and one gathers fifty pounds of honey and the other seventy-five pounds—what should cause the difference? We have cases on record very similar to the above, and who can give the solution?

Answer. If I really understand the question, I will give the solution. At the close of the season, you not unfrequently find hives, which seemingly have the same number of bees, the same amount of worker and drone comb, queens equally fertile, and nevertheless a difference in the weight of honey stored There may be several reasons for this; but, as a rule the difference is caused *by a change of queen.* If one of the hives changes its queen, the honey harvest may be considerably increased or diminished by that occurrence. It is *increased* when the change takes place while nature is still rich in supplies of honey, for then the bees will have no brood to nurse eight days after the old queen is gone, and can devote all their time and energy to honey-gathering; and thus before the young queen is fertile and begins to lay eggs, the hive will be very rich in honey. It is diminished, if the rearing of the queen and her fecundation be too long delayed; for then the old bees are lost, from time to time, and before the young ones begin their out-door labors the honey season is over.

Question No. 3. Novice says that he cannot doubt that it [meal feeding] saved them honey in some way or other. Now, is Novice sure of this. Please tell us what your bees used to make these little pellets of flour and meal to pack so nicely in their baskets? Do you think it was water? If it was not water, was it honey? If honey, whence did they get it, if not from their own hives? Are you sure they did not even go so far as to *unseal* their honey for the purpose named? If each hive used say five pounds of that rye and oat meal, how much honey think you does it take to pack it into bee-dough? Did you not also observe that your bees began to breed quite rapidly, as soon as they began to work on your out-door food? When they are raising young bees, do they not use up the honey just in proportion to the rapidity of breeding?

Answer. 1. Bees do not *save*, like a good housekeeper. They require each day a certain quantity of honey to nourish themselves and their brood, and that quantity they use, whether they have much or little to live upon. If that quantity is wanting, they do not content themselves with half rations, but decamp, or starve. 2. *Water* will not answer for making those little pellets, because it is not glutinous. In order to pack their pellets so nicely in their baskets, bees use *honey*, which they take along with them out of their hives. You can prove this by tasting such little pellets, when you will surely detect the honey. 5. If they are obliged to carry in meal or bee-bread, and have not enough *unsealed* honey they certainly will *unseal* it. 4. It would be difficult, if not impossible, to state precisely in figures the weight of honey which bees will want in carrying five pounds of flour; but I believe that *one* pound would be more than sufficient. 5. Yes, for then they find bee-bread in nature, and then, and then alone, do they breed rapidly. This is an indisputable fact. 6. The more brood they have, the more honey they use.

QUESTION No. 4. Novice says that his *low, broad, flat hives* have given him, the past two years, more honey and have been stronger in winter stores, than the *tall, narrow* hives. Why this is so, he cannot explain.

ANSWER. *Low*, broad hives give generally more honey, than *tall, narrow* ones. In *low, broad* hives breeding never gets to such an extent as in *high, narrow* ones; consequently, the one kind have more honey, and the other more bees. For *breeding*, broad, low hives are not to be recommended. The rational beekeeper will always use hives from nine to ten inches broad, and from sixteen to eighteen inches high. A little more or less is of small consequence.

QUESTION No. 5. Mr. Bingham writes about preparing hives for winter, and comments on Langstroth's statement that he found *frost* on the top of a board placed above six thicknesses of carpet, and then assumes that no *moisture* can pass through a tight board placed over a colony of bees. Is that sound philosophy? Is not lumber so *porous* that heat can drive *moisture* through it?

ANSWER. If the board is but half an inch thick, *no moisture* will pass through it. But it must lie tightly, and be well cemented *on all sides*, or the warm air charged with vapor will pass through the crevices, and then the bees will suffer for want of water, and perish.

QUESTION No. 6. On page 110, I find that the darker the hive, the more contented are the bees. Now, would you advise me to paint my hive *black?*

ANSWER. Bees only like darkness *within* the hive; whereas they dislike the dark color *out of it*. If you would paint your hive *black*, bees would hesitate long before entering it. To paint it black *inside* would be useless, as every hive should be so constructed that light is only admissable through the entrance. If bees are generally treated by a person wearing light-colored clothes, they will readily attack and sting a person dressed in black who presents himself before their hive.

QUESTION No. 7. On page 114, I observe that young swarms build worker combs *exclusively* at first. No exception to this rule, I suppose. Now, if a young swarm has a fertile queen, and she fills a small comb with eggs during the first forty-eight hours after being hived, and then dies from disease or accident, would the bees make *much* worker comb while they are rearing a new queen? Or would the bees decamp?

ANSWER. At first, that is about the first eight or ten days after being hived, every swarm builds worker comb *exclusively*. If the fertile queen is lost or killed by some accident during the first forty-eight hours after being hived and having begun to fill a comb with eggs, the bees will not decamp, but will rear a new queen. And until this new queen is fertile, they continue to build in some measure; but with very rare exceptions, they build *drone* comb only.

Having thus answered Querist's questions, I beg leave to add that, if he is able to read German, it would be well for him to order, through the importers, my husband's great work—"*Die Biene und ihre Zucht mit beweglichen Waben, in Gegenden ohne Spatsommertracht, von August Baron von Berlepsch*, 1*ste Auflage, Mannheim* 1869, *I Schneider, Preis* 4 *Thaler*." It would be exceedingly useful to him, and not only answer all his queries, but teach him many valuable things besides. I do not say this because the book was written by my husband, but because it is really acknowledged to be the best bee-book in Germany; and that the Germans do know something about bee-culture, and are *thorough* in everything they cling to is known as well, and conceded. If you devote a lifetime to some branch of knowledge, you are pretty sure to understand it.

When my husband was yet quite a young child, he used to tease his nurse by running to a neighboring apiary and asking her to get some honey. On his seventh birth-day, his father took the boy's hand and conducted him to the garden, where was placed a little bee-stand and a hive, which his father had bought for him, and said to him—"That's your birthday present!" Near the hive stood, hat in hand, *Jacob Schulze*, a simple peasant, but a clever beekeeper. Thenceforward he was my husband's teacher and bee-friend. From the 28th of June, 1822, to the 12th of December, 1854, when he died, that man was always honored and befriended by my husband; for though a peasant by birth, he was truly a gentleman in heart and character.

From 1822 to 1869, my husband loved and tended his little winged favorites, and the experience of forty-seven years is treasured up in the book above-named. It contains not only his own rich knowledge of bee-life and bee-keeping, but also that of other celebrated bee cultivators; and is a perfect treasure for every bee-friend. I wish it were translated into English, for it would be the very thing for the good practical sense of the Americans.

I do love America:

> "Long may her Eagle soar
> Proudly from shore to shore,
> From sea to sea!"

LINA, BARONESS OF BERLEPSCH.
COBURG, SAXONY, March 3, 1869.

[For the American Bee Journal.]

The Last Season not all a Failure.

The past season has been a very poor one for bees, in this section; yet I know of one man who has had good success. He lives about sixteen miles from me. He started with twenty-nine swarms, and increased them to sixty-four, mostly by artificial swarming. He got about two thousand pounds of surplus honey, and raised fifteen Italian queens to sell; besides Italianizing some of his old stock.

WM. J. MERRILL.
PLEASANT BROOK, N. Y., April 2, 1869.

[For the American Bee Journal.]

A few Questions from England.

Mr. Editor:—Accept my thanks for your invaluable Journal. Although three thousand miles of watery waste roll between us, we Britishers, (that is, the fortunate few that take the Journal), are regularly made acquainted with the ups and downs of our little friends in Yankeedom.

Now, Mr. Editor, I have one or two questions to put before the beekeeping brotherhood. It would give me great satisfaction if Gallup would "try his hand."

The real superiority of the Italians, in what does it consist?

Are Italians more difficult to handle than black bees? I have only one stock of the former, and they sting furiously.

The popular way to handle bees; whether by smoking, or liquid sweet, or neither?

Is there any way to prevent the accumulation of propolis—sealing the honey-board and frames so tightly as that they almost become fixtures?

What decision have the bee-keepers arrived at concerning red clover? My stock of Italians was separated from twenty-five acres of red clover merely by a turnpike road and a high hedge; and yet on neither crop could I see any of the family of Apis, excepting a few humlers. If Italians really do work on red clover, almost any part of Kent is good for apiculture. But I fear that is too good to be true.

Another question is, whether, by doubling correspondence and *cash*, we can get the Bee Journal fortnightly?

The last question, though last is not least, do we not all hold ourselves indebted to Mr. Langstroth? Is he not the Father of modern hives, and the Prince of modern apiarians? A correspondent wrote some time back that we owe him a debt not only of gratitude, but of *cash!*

Brother Bee-keepers, if this is so (and it really *is*), should we not find a pleasure in attempting to liquidate that debt? Surely it will not be so difficult a question as the present standing Alabama Claims! Any plan American bee-keepers may devise, (providing it does Mr. Langstroth justice), I will cheerfully subscribe to.

Mr. Editor, I do not wish to intrude on your space, but allow me to thank Mr. Gallup and all other correspondents, who so unreservedly give us their experience.

Walter Hewson.

Wickham-breaux, Kent, England.

In their modes of flight the several species of bees vary considerably. Some, like the *Sarapoda* and *Anthophora* dart along in a direct line, with almost the velocity af lightning, visit a flower for an instant, and dart off again with the same fleetness and vivacity. Others, like the humble bees and the hive bees, leisurely visit every blossom, even upon a crowded plant, with patient assiduity, sedulously extracting and appropriating the secreted nectar.

[For the American Bee Journal.]

Remarks on the Bee Disease.

In the March number of the Bee Journal, Mr. J. Davis, on page 172, states "facts" and asks "questions" about the late prevalent bee disease. Now, I think the problem is not a very difficult one to solve. I have had a perfect shower of letters from Kentucky, Indiana, Illinois, and portions of this State, with reference to the disease; and the statements appear to be very contradictory. From these letters and from what I have learned from the Bee Journal, it is hard to give a positive answer as to the cause of the disease, if all the statements are true. I do not wish to be understood as accusing any one of falsehood. It may, in part, be owing to the fact that all the correspondents are not practical or experienced bee-keepers, that the statements are so contradictory, even from the same neighborhoods. But, with my friend Davis, I can be positive, from personal observation of cases of a similar kind. The reader will notice particularly that Mr. Burbank, of Lexington, Kentucky, fed his bees, and on the 14th of January they were all right. (See March number, page 164). Now, let us look at the facts. In this section the season was good up to the 25th of July, and then the extreme heat cut off the honey crop at once. Still, the Italian bees kept on raising brood until the last of August. Young swarms, that had been building comb, stopped breeding from two to three weeks earlier than swarms that had their combs all built. Mr. Davis asks, will the queen cease to lay eggs if the bee pasturage fails? She certainly will, and last season demonstrated that fact conclusively. Understand that if the failure is only of short duration, the cessation of brooding will be only partial; but when long continued, as it was last season, the cessation is complete. He also asks why it should be so extensive and general? Answer, because the drouth and extreme heat were extensive. He further enquires, if it was a general thing everywhere that bees were dying, or was it local? Answer, it was general, so far as the drouth or extreme heat extended, except where bees had access to buckwheat pasturage. In neighborhoods where they had not access to buckwheat fields, they died; and three miles off, where they had access to buckwheat, they are in excellent condition. The buckwheat came in, here, just at the right time, before the queens had entirely ceased breeding, and hence the usual fall brood was matured. Where the bees could not resort to buckwheat blossoms, there was literally nothing for them to gather until September; and the bees having been so long a time, at that season of the year, without pasturage, when they re-commenced gathering, gathered very rapidly, paying no attention whatever to their queen, and she consequently laid no eggs. Here, there were only six days in September that they gathered honey. They commenced on the 8th, and continued three days; then, after a cessation of five days, followed three more gathering days. When bees work rapidly, they wear out rapidly; and in this case there were no recruits to make up losses. But the great diminishing of numbers did not take place until the latter part of October and in November; and swarms that stopped breeding first, diminished first. They did not die with poison, but with old age, in every case that came under my observation. When bees die with old age, and the weather will permit, they always leave the hive before they perish. Late swarms, which were examined about the first of October, were strong in numbers; but by the last of October they had dwindled down to a quart in bulk, and in some cases to a mere handful; but the queen was there. The Italians being longer lived, the diminishing in numbers did not commence so early in the season, as with the black bees. Mr. H. C. Bernard, in the March number of the Journal, says—"Those hives that contain large quantities of honey, and no bees, must certainly have gathered it." This we are not going to dispute. But he adds—"Experience teaches me that bees breed freely when storing honey." Now, friend Bernard, this shows that you are not a close observer, for if you had examined those stocks, you would have found that they actually did not breed while storing said honey. When the queen has entirely ceased breeding, by the middle or last of August, in consequence of the scarcity of forage, it is almost invariably the rule that if forage be gathered again abundantly in the fall, the queen does not recommence breeding, unless the gathering be of long continuance. There are exceptions to this rule, but I have found them rare, indeed.

I can assure the reader that there is no poisonous honey gathered in this section of the country; yet the result was just the same as in other sections. I account for the discrepancies in the various communications in this way. That the bees are dead, is a fact which all have discovered, and each indulges his own fancy or imagination in seeking for a cause, and imagination seems very wild with some. Allow a swarm of bees to become queenless about the first of August, and in November the bees are all gone up, in the same manner and with this same bee disease; and this does not prevent their hive from being full of honey. In every case where bees were fed, either artificially or from natural sources, to keep up the breeding of the queen, I hear that the bees are all right. Yet in those cases, in all probability, as many bees died as in the other, but the increase from brood kept up the population and the loss from natural mortality was never noticed, though it was nevertheless a fact. There has been and there still will be a great loss of stocks in this section of country. I did not feed my bees, and there is where I made a blunder as it turned out; but if we had not had those six days of honey-gathering in September, I had done right. On the first of October I saw that some of my stocks that had stopped breeding earliest were decreasing too rapidly, and I immediately set them in the cellar to stop the decrease. The result is, that, out of thirty-four stocks, I have six that occupy with bees only from four to six frames in each hive. On the last of February I was very sick, and for two weeks did not go into the cellar. The weather being very warm, and the ventilaton to the cellar not being open, all my strong stocks commenced brooding rapidly. I am now (March 20th) equalizing my stocks in the cellar, by taking a few bees at a time, every evening, from the strong and giving them to the weak stocks. This sets the queen to breeding, and in spring, when they are first set out, all those old bees are going to die off with old age; and if we do not then have young bees to take their places, the stock is gone up with *that bee disease.* But, by setting them to breeding rapidly, before they are set up, they will come out all right.

The want of pollen has nothing to do with bees dying, for the fact is that bees will winter on good honey, without a particle of pollen. The bees, last season, not raising their fall brood as usual, did not store the quantity of pollen they generally do.

I never tried the plan of setting bees in the cellar as soon as they cease breeding or gathering forage, or of burying them, which, if I understand rightly, is Bidwell Brothers' plan; but I am inclined to think it is a good plan, as it will keep up the strength of the stocks, instead of allowing them to dwindle away to nothing. Thank you, Mr. Davis, for stating facts and not fancy.

ELISHA GALLUP.

OSAGE, IOWA.

[For the American Bee Journal.

The Economic Hive.

Mr. Editor:—Being your most northern Canadian correspondent, and a constant reader of our valued Bee Journal, while the bee hive question is being so earnestly discussed, I may be allowed an article on that subject, which—though it may not instruct that well-Rooted novice of yours—may yet be of use to some younger plants, both north and south, who are commencing to read the Journal.

All will admit that uniformity in the size and shape of hives, throughout an apiary, is a matter of great practical convenience, especially where honey boxes and movable frames are used. Where extra queens are reared and kept on hand, as should be the case in every well conducted apiary, facilities thereto, should likewise be considered. Size and form of hive, also have much to do with success in building up stocks from small nuclei. Moreover, where a large amount of extra honey is desired (and where is it not?) arrangements should be made to facilitate its storage, suited to the designed method of removal, whether by the centrifugal melextractor or surplus boxes. Due regard should also be had to simplicity of construction and small cost.

I have carefully studied the instincts of the honey bee, together with skill in controlling those instincts, and *economy* in *handling*, and and increasing, and preserving; and, with reference thereto, have sought for that one form and size of hive, which, without essential change, best answers the greatest number of practical ends. As the result of my study and practice thus far, I present what I shall call the Economic Hive, because it can be so cheaply and conveniently adapted to so many uses. It is made of sound inch boards, and, when complete, is three stories high, and covered by a temporary roof for shade and shelter. Two stories are designed for frames, and the third for surplus honey boxes. The several stories are made separately, so that the first story may be used by itself, or in conjunction with the second or third stories, one or both, or all together, as circumstances or design may require.

The first story is made 12 x 20 x 12 inches, inside measure, or twelve inches wide, twenty inches long, twelve inches deep; and is set upon a low foundation, eighteen by twenty-six inches.

The second story is made 12 x 20 x 11 inches, inside measure, to set directly upon the first story and kept in place by thin base boards nailed all around and shooting a little over the first story.

The third, or half story, as it might be called, is made in the form of a cap, fourteen inches wide and twenty-two inches long, inside measure, and any height desired, to accomodate one or two tiers of boxes, which I make after Quinby's pattern, of glass set in posts, 7 x 13 x 6 inches, outside measure.

The frames I make ten by eleven inches clear, inside measure, and set them in the hive so as to leave one-fourth of an inch space around and over them, and one inch beneath, in the first story. In the second story (made shallower by one inch) the bottom of the frames comes down to within one-fourth of an inch of the top of the lower tier of frames. No honey-board between. I use thirteen frames, running crosswise, in each story, save in the breeding season, it will do to use fourteen, all filled with worker comb, in the lower story. The frames in the second story, to be emptied as occasion permits, by the aid of the melextractor, may consist in part or altogether of drone comb; so that by the use of the two tiers of frames in the two stories, all worker comb can be selected for the first or breeding apartment.

As all understand the use of surplus boxes, it only remains to show how usefully the first story may, in a variety of ways be used alone.

First. As, a stock hive, two entrances are necessarily made through the sun side, about four to six inches from either end, and closed or regulated by ventilating buttons, metallic slides, movable blocks, or channels in the bottom board, and these also answer for most other uses. Now, if extra warmth is desired, this first story covered with a loose board 14 x 22 inches, may be surrounded by a cheap rough case 16 x 24 x 18 inches, inside measure, and the vacant space filled with buckwheat hulls or some light material—thus making the hive, when rightly ventilated secure for fall keeping or even wintering out, and warm for early spring breeding. Later in the season, it may be desirable to remove this case, when, by the use of nicely fitting division boards, some very important purposes can be very conveniently accomplished, for which it seems to me this size and form is best adapted.

First. If it is wished to use a choice queen for providing a stated supply of perfect queen cells, as is my custom, two frames should be removed from her hive and a division board inserted across the middle, and if a board half an inch thick be inserted at either end, it will of course aid the warmth, and when lifted out leave more room to work the remaining frames—six in number—in each apartment, which will be just 9 x 12 x 12 inches, leaving each frame at the right distance from the others. Now, in the apartment without a queen, cells will be started, and with due care in alternating the queen from end to end, every nine or ten days, a stated supply of cells may be safely kept up, which will be far better than those forced in the little nucleus boxes.

Second. To prepare one of these Economic hives for rearing queens, it is only necessary to make an entrance in the middle of the back side and insert two (2) well fitting division boards, and you have three apartments each 6 x 12 x 12 inches, just large enough to receive four frames, and right to be covered by a honey box. Now insert your comb with brood and bees, and you have three nice little stocks, each aiding to keep the other warm, and ready to take charge of your extra queen cells; and (providing each queen, on becoming fertile, is left long enough to fill the combs with eggs), as good in proportion to their numbers, for box honey, as larger stocks. These little stocks, left in this way with their queens, and an extra box of honey over them, will winter in a warm cellar just as well as large stocks. And, what a treat, three queens to a hive! for emergencies in the spring, or with which to start early artificial swarms.

Third. To rear stocks from a nucleus, two division boards may be used, and a few combs with brood, bees, and a queen cell inserted in either end, and built up Gallup fashion. Then one division board may be left, and both queens wintered; or one queen and both boards removed, and the stock treated as desired.

Now, Mr. Editor, I doubt whether any other hive, so simple in construction, can combine so many valuable advantages. Mr. Hazen's and Mr. Quinby's new hives are no doubt excellent of their kind. But at this stage, when the melextractor seems to promise such a saving of comb-building, an arrangement for the accommodation of extra frames seems desirable, rather than one for surplus boxes. In my opinion, Mr. Gallup, in the crosswise frame, has hit upon the best general form, of which my preference is just a modification.

I must say that I have received from Langstroth, Quinby, Gallup, and others (as anyone may) many useful hints; and to me the impression made is unpleasant, when any of these experienced and useful men, in the art—or their work—is spoken of lightly or slightingly. If, after much effort, they have not reached the maximum, neither doubtless have others; and if any of us should attain to brighter ideas, we may after all be indebted to them for many of the seed thoughts which, under joint culture, have only grown a little.

As regards patents, I could wish, with Quinby and Gallup, that a matter so simple as bee hive improvements were left untrammelled by conflicting claims. It may be justice to give leaders in the exposition of an important principle some such advantage; but for myself I can say I am amply repaid in honey and pleasure for any improvement which I can make, and am quite willing to reciprocate with the public for advantages which I may in like manner receive in return.

As a minister of the gospel, I magnify my office, but am quite an enthusiast in bee-culture. And with good reason. For I know nothing beside so well calculated innocently and profitably to rest a weary mind, as this. After long and intense application to necessary study, an hour's airing and excitement in the bee-yard completely rejuvenates the jaded powers. So my bee-yard serves me for more than cash and pleasure; and, like Novice, I am longing with all bright anticipation for the summer of 1869—while two to four feet of solid snow upon the ground, makes it necessary to keep bees housed as yet. But brighter skies announce the spring at hand.

"Come gentle spring, etherial mildness, come!"

J. W. Truesdell.

Warwick, P. Q , Canada, April 6, 1869.

[For the American Bee Journal.]

Novice's Reverses.

Now, please, Mr. Editor, do not let the "knowing ones" say, after reading the above heading, "its just what we expected!" We are going to confess the whole, and then all can judge if it was altogether our own fault.

When we last wrote you, we were going to winter our thirty-five stocks so "scientifically" that we could'nt lose any. But, oh—well!—the truth is that

"Man proposes, and God disposes,"

in regard to bees as well as other events. Owing to a rush of business about the holidays, we really could not get our bees into that cellar (which we were going to keep so carefully at an even temperature of forty degrees), until just before New Year; so that they had been out during a severe cold spell. After getting them in, in a satisfactory shape, we arranged the ventilation and temperature so, that they were as quiet and orderly as we could wish, *for a few days*. Then the weather kept getting so much warmer, that we were obliged to raise the caps from the hives, and give all possible ventilation, as we mentioned in a former article. In this way we managed until along in February, when the weather became so decidedly "summery" that we thought we should really be obliged to put them out, and were only deterred from doing so by thinking that it must certainly "come *cold*" soon, according to the prophecies of all the old farmers, that our winter had not come yet. So we waited for even a cold night, to open the doors and windows of the cellar; but even *that* would not come.

About the last of February, one noon, we made an examination and found the floor thickly strewn with dead bees, and many of the hives covered with a tarry excrement and emitting a most unpleasant smell. This decided us to set them out the next day, at all events, and we started away to business. But, while walking up street, we fell to musing how we had many times put off until to-morrow some disagreeable piece of work and had afterwards repented, until we ended by wheeling about towards home, and immediately put every stock on its summer stand. We determined to make a thorough examination of every stock, regardless of clothing; which we should have done, had not the weather turned so *freezing cold* before we had finished, that we were obliged to stop. We found many of the bees occupying the centre of a filthy mass of dead bees and the substance before mentioned, which covered the combs and everything else—many of the bees crawling out of their hives and dropping on the ground.

Mr. Editor, what could we do? We thought of the bee disease, cleaned out the hives as well as we could, and tried to feed honey that had been gathered in June; but it did no good. All we could do, was to wait for a return of that unseasonable *warm* weather, which we have not seen yet, (and it is now the fifth of April), unless we except a few days in March, when we induced what were left to work on rye and oat meal. Since that time they appear all right.

We have only thirteen stocks left out of thirty-five; and the dead include nearly all our heaviest stocks. The one that produced the two hundred and three pounds of honey last year was most lamented of all.

Nearly all left plenty of honey, although some of them had consumed an immense amount by the first of March.

A neighbor near by lost his only Italian swarm, with the same symptoms, which remained out all the winter. The hive contained very few bees, (as in fact was the case with most of ours), but was nearly half full of scaled honey.

We dislike to think all this the result of our ignorance; but cannot see the difficulty, unless it was bad honey, or because there was so little brood raised in the fall that nearly all our bees were old.

Now, Mr. Editor, instead of those jars of honey which we talked about, we are going to see how soon we can build up our number again, with the aid of plenty of combs, honey, and the knowledge gained by three years' experience, if we are only a Novice.

* * *

The first fifteen days of the new establishment of a swarm in a hive are employed in the most active labor. There is sometimes as much work dispatched in that little time, as in all the rest of the season that is proper for working.—Wildman.

[For the American Bee Journal.]

Some Questions in Back Numbers Answered.

While reviewing some back numbers of the Bee Journal, I see on page 58, vol. 3, Mr. J. L. McCune asks two questions. *First*—Will there generally be a noticeable difference in the markings of workers from mothers, one of which is a pure Italian queen but mated with a common drone; the other a common queen mated with an Italian drone?

I kept about half common bees and half Italians in my apiary for three years, to test the superiority of the two kinds; and had many queens impregnated by drones of their opposite color. The workers from black queens that mated with Italian drones seldom showed more than *two* bands; while the Italian queens that mated with black drones, always produced some bees that showed *three* yellow rings. Judging from observations made in my own apiary, my opinion is that the black queens, impregnated by Italian drones, showed the *fewest* yellow rings.

Second query:—Has any one, not raising queens for sale, *ever had bees to work freely on red clover?*

I intend to raise Italian queens this coming season, for sale; yet I will answer his question *candidly*, and Mr. McCune can take it for truth or not. I have had Italian bees for six years, and live in a section of country that has hundreds of acres of red clover every year; and yet I have never seen bees gathering honey from it except in two years, 1862 and 1864. In 1862, I had no Italian bees, but had one hundred and thirty colonies of black bees, and *saw them gathering honey from red clover* for about three weeks. That was the best honey season we have had here for twenty years or more, The red clover blossoms were filled almost to overflowing with honey, and I often saw two bees filling their sacs from one blossom, and then leave honey in the little tubes that they could not reach. In 1864, I saw both Italian and black bees work on red clover for a few days, in the forenoon, but *never* since.

I have bought queens from Mr. Langstroth, but cannot get their progeny to gather honey from red clover. It may be that his soil is so poor that the blossoms are short, or produce more honey than mine.

In the same volume, some beekeeper whose name I have forgotten, inquires if paint will prevent bees from sticking the honey-board fast to the upper bars of the frames? No! I have tried it with both the black and the Italian bees. They stick it just as fast, with the paint, as without it.

Some tell us that *fresh paint* is so offensive to bees, that they will leave the hive if a swarm is put in one freshly painted. I have, on some half dozen occasions, put bees in hives just painted, and they all went to work the same as in other hives. I have often had bees come where I was painting, and stick the paint on their legs just like pollen and carry it off, I presume to daub up the crevices, or to use it in some way as propolis.

H. Nesbit.

Cynthiana, Ky., April 2, 1869.

[For the American Bee Journal.]

That Reply (?)

Mr. Editor:—In the April number of the Journal, I find an article headed "Mr. Kidder's Reply," and containing over his signature some references to statements made by Mr. Gallup, and an article headed "Facts," which appeared in the January number of the Journal over my signature. I presume Mr. Gallup is abundantly able to attend to his share of this "reply."

As regards the case in hand between Mr. Kidder and myself, I have but a word to say. He begins his reply to my "Facts" by stating that I have asserted certain things. This, to put it mildly, is not a "Fact," as your readers will see for themselves by turning to page 135. Mr. Kidder's controversy should not be with *me*, but with the Judge and Clerk of the United States Circuit Court—they being the parties who make the assertion that the suit in question "was brought to a final hearing upon pleadings and proof!" With all due deference to Mr. K., I would submit that officials are in a position to know what were the facts, quite as well as Mr. Kidder; and the public will be apt to accept their *official* verdict in preference to any mere assertions of one who, after boastingly advertising that *he* was defending the suit and prepared to show various things, "if Mr. Otis would let the suit come to trial," now faces about and states that the suit went by default, Mr. "Austin deeming it advisable to pay no more regard to it."

I will not occupy more of your valuable space, it being very plain that Mr. Kidder must join issue with Judge and Clerk, in place of with me. *They* are the parties who state officially the "facts" which Mr. K. will find need a better reply that bare assertions which are directly contrary to "facts." They are of the impression that the defendant was adjudged to pay damages and costs; and they are *in a position to know*. I take their word for it, not having been present at the trial, and Mr. Otis being no "agent" of Mr. Langstroth, but the owner of the patent for the territory in which Mr. Austin lived.

James T. Langstroth.

Oxford, Butler Co, Ohio, April 6, 1869.

* * *

When straggling bees come into a room, if the upper sash of the window be pulled down, they will presently go out again. But where windows are not so constructed, the bees should be gently brushed down to that part which does open, or otherwise they will beat themselves to death against the glass, as they always ascend to the upper part, where the most light is.—Keys.

[For the American Bee Journal.]

Gallup on the Kidder Case.

Mr. Editor:—It appears that our friend K. P. Kidder is still alive. In the April number of the Bee Journal, page 195, he says: "I have no recollection of supplying Mr. Gallup with queens," &c. In the spring of 1864, Mr. Joseph Bates, of Fond-du-lac, (Wis.) sent five dollars to Mr. Kidder for an Italian queen, and when said queen arrived, I took her out of the shipping box and introduced her to a black colony for Mr. Bates. Now for a description of said queen. She had one very narrow stripe around her abdomen, and the next ring was tinged a trifle about half around the abdomen; the rest of the abdomen was as black as any tar I ever saw. At the time of introducing her, I unhesitatingly pronounced her to be not over one-fifth blood Italian; but we concluded to wait for her progeny. In about four weeks we examined the brood, and on about one out of every dozen we thought we could see a small stripe, but we were not sure. We both examined to see that the queen we introduced was there; and there she proved to be, just as black as ever. In the December number, I did not think that anything less than half a stripe was worth mentioning.

Mr. Kidder further says that he gives his customers a warranty that the majority of workers from his queens shall have three distinct bands or stripes. Now I have seen queens that all of their workers show the three distinct bands or stripes, and all those that produce any workers with less than three stripes, I pronounced impure every time. Those stripes, too, can be seen without multiplying glasses.

You may ask why did not Mr. Bates send for another queen? Answer, because I considered a warrantry from a man that would send out such a queen *as pure*, good for nothing; and I am still of that opinion. I can see no possibility of any chance for mistake in such a case. There is a possibility for an honest person to send out an impure queen, impure from being impurely impregnated; but to send out such a queen as I have described, needs no comment.

Mr. Kidder has been very unfortunate in another particular. He has advertised small packages of pure Alsike clover seed, at twenty-five cents per package; and in every case that has come under my observation, or that I have been informed of, it has persisted in growing common white clover, instead of Alsike.

I will further state that I have seen several stocks of Italians, where the queens were obtained from Mr. Kidder, owned by different individuals, and have never seen any that I considered pure. But I am not going to assert that he never sent out any pure ones.

About that suit. I received, from a friend, what I understand to be a copy of a judgment; and I mentioned it as I did, for the purpose of drawing out Mr. Kidder. I wished to see what he had to say on the question. Mr. Langstroth has had published on page 135, a true copy of said judgment, and that does not correspond with Mr. Kidder's statement at all. In fact it is just the reverse. If this Wm. D. Shipman is a myth, and said decision also, it would be very easy for Mr. Kidder to prove it so. Utica, N. Y., is certainly not a myth, for I have been there. I do not understand as Mr. Kidder does, about the "proofs and pleadings." That is, I do not accept the copy of the judgment as Mr. Langstroth's assertion, but as a matter of Court record, which Mr. Kidder's mere assertion cannot overthrow or disprove. Furthermore, if said judgment was taken by default, it will be found so recorded, or else they do business differently at Utica from any Court of record that I ever knew anything about. The records are kept expressly for the purpose of showing the facts.

If the plaintiff in the above mentioned suit paid the costs, he was more liberal than the generality of plaintiffs would be in such cases. But perhaps the defendant was like the Dutchman's dog, *not worth one cent*. The Dutchman sued a man for killing his dog, and swore in Court that the dog was not worth one cent., but since the man was so mean as to kill the dog, he wanted every cent the dog was worth.

The reader will see also that Mr. Kidder tacitly admits that his hive, at the time of said suit, was an infringement on Mr. Langstroth's rights; as he has seen fit to make an alteration in his hive or frames, so as to avoid an infringement. I was informed, about two years ago, that Mr. Kidder was obliged or saw fit to make said alteration, since Mr. Langstroth obtained his reissue.

By the way, why does not Mr. Quinby or Mr. Langstroth procure some of Mr. Kidder's superior stock of Italians—say the light colored ones for which he got up the patent cuts, and then accused Professor Flanders of stealing his thunder or his patent cut?

If any farmer wishes to know what Mr. Kidder's patent bee preserver is, he can take his fanning mill screen, remove the honey-board and place the screen over the hive, fasten up the entrance, and he will have it. But let him look out, or Kidder will prosecute him for making use of his patent. Oh, humbug, what a jewel thou art!

Elisha Gallup.

Osage, Ohio.

[For the American Bee Journal.]

Mr. Editor:—In perusing the Bee Journal, I notice many plans suggested to prevent the production of drones in hives. Perhaps it may be interesting to some of your readers to know the process I pursue to that end.

In the spring, before the bees begin to gather stores, I take out the frames, and cut out all the pieces of drone comb, supplying their places with worker comb. Thereby the object is attained at very small cost; and stocks so treated ever after produce very few drones.

J. C. Wedge.

Fond-du-Lac, Wis.

Among the ancients, Aristomachus contemplated bees for the space of fifty-eight years.

[For the American Bee Journal.]

Cost of Brood.

Mr. Editor :—I would like to get the opinion of some who have experience with frame hives, about the amount of honey it takes to raise a thousand young bees from the egg till they are capped over.

My bees lost in weight, from August 4th to 24th, or in sixteen days, eleven pounds each, or eleven ounces per day, viz :

No. 1, with about 7,000 drones, 11½ lbs.

No. 2, with a young queen and 1,000 drones, 9 lbs.

Nos. 3 and 4, with 5,000 drones, each, 11 lbs.

They had gained, from July 2 to August 1, over thirty pounds each, and probably had a large amount of brood to feed. The number of drones was estimated from the brood previously in the combs. From appearances outside the hive, I should not have judged there were over four or five hundred drones in each. From the difference of two pounds, in sixteen days, in favor of the hives with few drones, it would appear that the usual number cost the apiarian two ounces per day, or twelve pounds of honey for three months to each hive, besides the cost of raising the brood, and the value of the workers that might have been raised instead. I will guess, till some one gives me reliable information, that it takes two pounds of honey and pollen to carry one thousand young workers through their first ten days.

The average weight of my stocks, deducting hives, honey taken, &c., was 48¼ lbs. on the 8th of August, and 37½ lbs. on the 24th of that month. On the 16th of November, when they were put in the cellar, they weighed 25 lbs. each. On the 29th of January, I weighed two hives, the lightest and the heaviest, and found they had lost 4½ lbs. each, or sixty-eight ounces in seventy-four days. The honey-boards were raised one-fourth of an inch on small blocks, and the entrance holes stopped with cotton.

According to A. Brown's account of Wintering Bees, in the Bee Journal, vol. 3, page 225, his bees consumed in the cellar from 100 ounces to 268 ounces in 120 days, or from one to two and a half ounces per day. The amount over one ounce a day, was probably used in February and March, in raising brood. Now if any observer can tell how much brood his bees had in February and March, till they were set out, counting fifty to the square inch, and how much they lost in weight more than in the first half of the winter, we could calculate very accurately what a thousand young bees cost.

Last year, March 7th, my frame hive had 300 brood, some capped over when I set them out. April 20th, they had no eggs or brood of any age. They had lost two ounces a day from Feb. 13th, or 8¼ lbs. in sixty-seven days, leaving 11 lbs. in hive. On the 1st of May, when eleven days out, they had 1,300 bees capped over, showing that liberty hastens breeding. If it takes two pounds of honey to a thousand, a hive that has 30,000 brood in the comb when they swarm, as some have, besides as many previously hatched, to make two stocks, they must have used 120 pounds, perhaps half pollen. When the amount is known, we can judge better how long to set our bees out, before we expect them to find honey—according to the weight of hive, and what we could afford to feed.

Henry D. Miner.

Washington Harbor, Wis.

[For the American Bee Journal.]

A New Style Langstroth Hive.

Mr. Editor :—Several correspondents, in the Journal for April, describe hives which they have devised, claiming for them a large amount of room for surplus honey boxes. Now I have a new style of the Langstroth hive, (I call it the Langstroth hive, because I use the Langstroth movable comb frames in it,) which has as much, if not more, room for honey boxes than either Mr. Quinby's or Mr. Hazen's. At any rate all that is necessary to increase the box room to any desired extent, is to make the cap large enough to cover all the boxes that can be placed about the brood chamber. I have so arranged the frames that the boxes, when in, are only three-fourths of an inch from the brood comb; and, by removing the honey-board, they can be placed half an inch nearer the brood, thus giving the bees a clear passage to them.

The hive is simply this—a brood chamber seventeen inches deep by fourteen inches from front to rear, and nine inches from side to side, is placed on a movable bottom board. The boxes are placed on the sides of the brood chamber ; and, if desired, can be placed on the top also. The frames run crosswise of the hive, and not from front to rear, as they do in all other movable comb hives. As the boxes are on the sides of the hive, it will be seen that when the bees return from the field, they will not have to crowd up through the combs to reach the boxes, but can pass up the sides of the hive, and enter any box they wish to. I use thirty-six three pound boxes on this hive at one time, and place them only on the sides. I consider that this number of boxes is enough for a stock of bees at one time, and do not use any on the top, as the full ones can be taken off and replaced by empty ones.

This hive winters bees well on their summer stands ; and, as it is double, it needs no protection from the weather, summer or winter. Bees in this hive did not cluster on the outside during the hot weather we had at the last of June and the first of July, last season.

I will not describe this hive more minutely now ; but will do so at some time when I have cuts to illustrate it.

H. Alley.

Wenham, Mass.

There is scarcely a village in the country that might not readily keep as many hives of bees as there are dwelling houses in it.

[For the American Bee Journal.]

Dyentery, or No Dysentery.

I see in the February number of the BEE JOURNAL, page 145, friend Gallup's article on the prevention of dysentery. He starts out by saying that his bees never have "dysentery;" and that he has come to the conclusion that there is no such disease. Here, he thinks, friend Puckett will say—"that is more of Gallup's buncom." Now friend Puckett does not say so, but he does say that it is a small squib of Gallup's "gas," mixed with a thin slice of his "nonsense." Let us see what there is in his article. He says dysentery is not a disease, "but a condition of the hive or swarm." Well, suppose it is, if the "condition" of the swarm is not the disease, it may have something to do with producing it. It makes no difference what produces it; it is nevertheless a disease after it is produced. Friend Gallup says it is not a disease," and then gives the remedy. He states that his bees used to have it twenty-five or thirty years ago, but "they know better now." Of course his bees "know better" than to have any disease; but that does not prove that three is no such disease as dysentery. May not other people's bees, not so well trained as friend Gallup's, have the disease? Was it a "disease," twenty-five or thirty years ago, before friend Gallup's bees learned to "know better?" Well, if so, may it not be a disease still amongst bees that have not the scientific knowledge that friend Gallup thinks his bees have acquired? A late swarm that has thin watery honey, he thinks may have dysentery. Where did the late swarm get the thin honey. Is not an early swarm just as liable to gather such honey, if it is secreted in the flowers? Bees do not make honey. They gather it just as they find it in the blossoms, and an early swarm will gather just the same kind of honey that a late one will; and if they partake of it as food, are they not just as liable to have the dysentery as a late swarm, though they may have some good honey, that was gathered in the fore part of the season? And let us suppose such a case. Suppose all the honey that was secreted in the flowers in a whole season was thin and watery (as it was last season,) would it not be apt to give everybody's bees the disease that friend Gallup says does not exist? Of course it would, unless the owners had taught those bees to "know better." The condition of the hive or swarm has nothing to do with the secretion of honey in the flowers. There is no disease either among bees, animals, or the human race, that exists independent of a cause to produce it. A disease of any kind is a condition of the subject, and not a thing.

B. PUCKETT.

WINCHESTER, IND., Feb. 15, 1869.

The principal reason why bees have not been reared in greater numbers in this country, is, the almost total neglect of them, by gentlemen of property.

[For the American Bee Journal.]

Bees in Minnesota.

MR. EDITOR:—I am greatly interested in all kinds of information in regard to bees. I have kept bees here in Minnesota longer, by many years, than any other person, having been engaged in it over twenty-six years; and I have more colonies now than any other person here that I know of, as I am wintering more than two hundred colonies. All these are in well made and painted hives, with movable frames. A large portion of my stock is Italianized, from a queen purchased from Messrs. Langstroth & Son.

I think this a good country for bees to increase in and store honey, when once through our long winters; though from some cause, they have not stored as much surplus honey for three years past, as they formerly did. It is probably owing to some change in the climate, or greater variableness of the weather. The fore part of last season was splendid for bees. Mine commenced swarming on the 22d of May, and continued until they had thrown off a hundred swarms by the middle of June. They continued to do well until the dry hot weather parched up all the flowers. Then for a long time they had nothing to work upon but honey dew, till the rains brought out the fall flowers in great abundance. It was then, however, too cold for the bees to do much. Hence a portion of my stocks were quite light at the end of the season, though the remainder had honey enough—such as it was.

Early in June, after the white clover was in full bloom, I noticed that the bees were gathering honey and building comb faster than I had ever known before at that time of the year. I examined the clover and all other flowers near by, in the morning, and found no bees at work on them in the fore part of the day, and but few in the afternoon; and I could follow the bees by their loud humming, when high in the air out of sight, until they reached the oats and willows. There the bees were seen gathering this sweet stuff from the leaves. I climbed up some of the trees and saw, above this honey, on the underside of the leaves any number of plant lice, and supposed they produced the sweet stuff which the bees were gathering. Persons who live several miles from here told me that there was great quantities of it almost everywhere during the hot, dry weather, but when the rains came on it all disappeared.

This honey would granulate in a few days after it was gathered, forming course grains, but does not become solid or hard. It is not good, has a sickening taste, and will spoil all the good honey in the hive. It tastes like some of the poorer qualities of sugar from the Indies. I do not know how the bees will winter on it; but as it is about all they have, I am very suspicious of it. I do not know but that it may have something to do with the losses that took place last fall, and fear it may affect the wintering. My bees are very uneasy, and many of them are crawling out and being lost on the ground. It has been the warmest winter we have had since

I have been here. My bees were put away from frost, as we expected it would be as cold as usual; and they have been very warm in spite of all I could do. If they all perish, all well. They cost me but little, as I got them from the woods, and can do the same again.

JOHN A. FORD.

NEWPORT (MINN.) March 9, 1869.

[For the American Bee Journal.]

The Season and Bees in Mississippi.

MR. EDITOR:—I have to report that the last season, in this vicinity, was a poor one for bees, though I cannot complain much. I started with seventeen colonies, and increased their number to about forty, besides getting about four hundred pounds of honey.

My greatest difficulty was with my bees building drone comb. Nearly all my stocks would build more or less drone comb, at all times during the summer; the new swarms, whether natural or artificial, the same as the rest. My queens are all young, and I think prolific. I have increased my swarms in the way Gallup directs, in his article on straight combs in the February number of the BEE JOURNAL, by using division boards and putting one empty frame between two full ones; but still I got nearly as much drone as brood comb. The bees would generally begin worker comb, and build down from two to four inches, and then change to drone comb—nay, would oftentimes *begin* with drone comb. The strongest swarms built as much drone comb as the weakest, if not more. My only remedy was the free use of the knife, using the comb cut out for the honey boxes. Of course this retarded the work of the bees; but it was better than raising so many drones.

My bees filled only a few boxes, preferring to store in the body of the hive. They would not fill boxes, as in other seasons, although strong in numbers and gathering honey.

An infallible rule, by which beekeepers could compel their bees to build all worker combs, and those all straight, would be worth a great deal of money. I think friend Gallup must try again to fit my case.

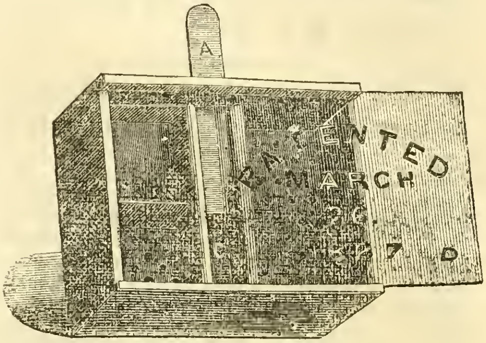
As to straight combs, I will relate my experence, when younger. At that time I was sanguine, and ready to try every new thing that offered in the shape of hives. Among other hives that I tried was one, in which the bees entered at the top; at the *ridge* so to speak, as it had a double roof like a house. It had no particular advantage that I know of; but I well remember that, in all those hives, the combs were invariably worker comb and straight, and built across the roof the way rafters are placed in houses. This would indicate that frames which come to a point at the top, would secure straight and worker combs, better than any other form. I intend, the coming summer, to make some experiments with this end in view.

J. TOMLINSON.

NEWBURY, MISS.

[For the American Bee Journal.]

J. M. Beebe's Bee Feeder.



MR. EDITOR:—Ih compliance with many invitations received by letter from readers of the JOURNAL, I will attempt to describe my bee-feeder, as I promised to do.

The illustration represents the feeder with the glass top partly removed. It is composed of a box containing three compartments for furnishing the bees with water, rye flour, and sugar syrup, at the same time. Each compartment is provided with a tin vat movable at pleasure. The vats to contain the liquids are furnished with floats to prevent the bees drowning. C represents a central passage way, through which the bees gain access to the food. A represents a slide door by which the passage way is closed when the feeder is to be filled. D represents a movable glass top, for the purpose of closing the top of the feeder, attracting the bees, and readily discerning when the food is gone.

This feeder is cheap, simple in construction, and may be used on any hive.

Early in spring I feed each colony of bees one-fourth pound of sugar daily, to promote breeding. If their store of honey is light, I feed a little more. They work readily on rye flour, until pollen can be obtained abroad. Bees require a considerable amount of water when they are rearing brood largely. Last season my thirty colonies consumed three pints daily, averaging one day with another, as long as I fed. It will be readily seen that by furnishing bees with water, rye flour, and sugar syrup in early spring, we not only promote rapid breeding, but we save the lives of many old bees, that might otherwise be compelled to go in search of the necessary food, and fall victims to the chilling winds of spring. I am fully confident that by feeding, my bees commence swarming much earlier. I have had my hives so crowded with bees, that they hung on the outside of the hive before the apple trees were in bloom, and drones were flying on the 10th day of May. When feeding is once commenced, it should be continued every day until white clover or other honey-producing plants yield a sufficient supply, or the bees may kill off their drones and even destroy the unmatured brood, which would be a great disadvantage. If any of the readers of the JOURNAL do not fully understand the description given, by writing to me and enclosing a stamp, by return mail I will try and explain more fully what is not understood.

J. M. BEEBE.

CASADAGA, N. Y.

[For the American Bee Journal.]

A Possible Cause of the Bee Disease.

MR. EDITOR :—I am a reader of the BEE JOURNAL, and also a beekeeper and very much interested in beeculture. I see by the JOURNAL that a disease or something else is destroying the bees in many parts of the country, and learn from the February number that in many localities the devastation has been very great. I made a little discovery in my bees last summer, which may perhaps throw some light on the subject. Whether it is anything new or not I cannot tell ; but this is certain, that I have not read anything written on the subject as yet that furnishes any satisfactory explanation. If you see proper to publish what I have to say you are welcome to do so, and let it go for what it is worth.

I have not suffered materially from the mysterious malady hitherto, but last summer and fall I noticed a good many dead bees around my hives, especially in the morning. I went to examining some of them, and, to my surprise, in the abdomen of almost every bee that I examined, I found a *living* worm or maggot, nearly or quite an eighth of an inch long. The head portion or that part which I took to be the head, was much larger than the rest of the worm. From the head it gradually tapered back to a point. On the largest end, or head, of this maggot there were two very minute black dots, resembling eyes. This maggot is found in the upper part of the bee's abdomen, and by taking the bee in my fingers, and drawing it apart, the worm can be readily detected. When taken out and laid on the hand, it could be seen to expand and contract in a very lively manner.

A beekeeping friend of mine put some of the dead bees in a glass bottle, and in a short time this maggot hatched, producing a fly nearly as large as what is called the Hessian fly—a perfect insect.

Now, does this worm destroy the bee, and if it does, will it not destroy a whole colony, as well as a few bees ? In some localities I could not find any of them in the fall, after it became cool enough to prevent the bees from flying, My opinion is that if it would kill a few bees, it might destroy a whole swarm just as well. I incline to believe that the waste of a swarm during the summer months, is occasioned by this maggot, more than by all other causes combined.

Will not the readers of the BEE JOURNAL investigate this matter next season, to ascertain whether this maggot prevails to any considerable extent in the apiaries of the country ? I would like to know whether any one else has observed anything of this kind among his bees.

H. B. PHILBROOK.

EAST SANBORNTON, N. H., March 15, 1869.

[For the American Bee Journal.]

That Bee Disease.

The first account came in the form of something that looked like a hoax—"*Mysterious Exodus of Honey Bees in Kentucky!*" But the smile with which all greeted this story has vanished under the array of facts, going to show that throughout southern Ohio and Indiana, and a large part of Kentucky, the bees are almost without exception, dead. Dead, with plenty of honey in their hives, and in the mildest winter known for years.

I have at this time no explanation to offer, not having had an opportunity personally to examine any case of the disease. Our own apiary of Italian bees is untouched by its ravages, while nearly every stock of black bees in this vicinity is dead ; but whether from disease or want of stores, it is hard to say.

Last season was in this locality a disastrous one for bees. Owing to a combination of misfortunes, they closed the season without any swarming, with no box or surplus honey, and, in the case of black bees, without enough stores to carry them through the winter. It therefore happens that the black bees are gone, and the honey ditto ; and whether they had "the disease" or not, no man knoweth.

For many weeks we received daily letters of inquiry in regard to the disease, from those whose bees were attacked, but could give no remedy, not knowing the cause The symptoms, as described, varied a great deal in different cases ; but a summing up of the whole prevents me from subscribing to the "old age" theory as a complete explanation. I think that theory tells about *half* the story.

Many of the accounts received speak of the Italians as partially exempt from the ravages of the disease. Our own, as above stated, have escaped entirely, while we learn this spring that on every side of them the black bees are gone, in some cases leaving considerable honey in accessible parts of the hive. Your readers will be interested in reading the following extracts from a letter dated February 19, from E. L. Grant, of Boone county, Kentucky:

"In my county there were perhaps fifteen hundred stands of black bees, and as far as I know not one of them has lived up to this date. In sight of my house were last fall seventy-five stands of black bees, every one of which is now dead.

"I had a large stand of black bees in fine condition, in the fall. It perished, leaving about twenty pounds of honey. I had the only stand of Italians in the county. My Italian stand is in fine condition, briskly at work every fine day, carrying in pollen ; and I am fully convinced that the Italian is "the Bee."

If the Italians have generally, as here, and in the case of Mr. Grant, withstood the disease and refused to join in the "mysterious exodus," we have another recommendation for them. What is the experience of others having them in the infected district ?

J. T. LANGSTROTH.

OXFORD, OHIO, March 10, 1869.

[For the American Bee Journal.]

Items of Various Kinds.

The Bee Disease.

That bee disease, so far as my knowledge extends, has not appeared in Canada, and I hope it will not, as we have already sufficient drawbacks to beekeeping. Having never seen anything of the kind, I am quite unprepared to say what the cause is, or what the remedy. However, I cannot believe it to be poisonous honey, scarcity of honey, or barrenness of queen. Why should poisonous honey, such as could cause the disease, have been gathered for the first time last season? Scarcity of honey and barrenness of queen are contingencies too common to be productive of such fatal results. The same may be said of "want of pollen" as the cause. Has there never been a want of pollen before? Why should this want occur last season? Were not flowers as abundant as in other seasons, and as productive of pollen, even if not of honey. Neither can I accept my friend Dadant's "probable cause"—constipation; that is, if constipation is produced, as he is inclined to believe, "by a sudden and great fall of temperature, while the abdomen of the bees is filled with fæces." Do we not frequently have as great and as sudden a fall of temperature, as was experienced last September? It appears to me that the true cause of the disease has not yet been arrived at.

Foulbrood.

I know of but one apiary in the Province of Ontario, where foulbrood exists. There may be others, but not to my knowledge. This apiary is owned by Mr. Thayer, of Georgetown. In the fall of 1867, being in that vicinity, I called on Mr. Thayer, and with him examined several stocks of bees, two of which were badly affected with foulbrood. I tried to induce him to destroy the hives and stocks entirely; but he being unwilling to do so, I cut out all the affected combs and left the stocks to live or die. Mr. Thayer had I think at that time some fifty stocks. I cannot say whether others were affected or not, or how far the disease had spread among his bees, not having heard from there of late. Mr. Thayer now takes the Bee Journal, and it is to be hoped that he will see to it, and rid his apiary of the disease.

Candied Honey.

Friend A. J. Root, in the current volume of the Bee Journal, page 179, thinks that candied honey, after being melted by submitting it to a temperature of 206° F., will not candy again. My experience has been that it will. If Mr. Root will put his honey into jars, and then bring it nearly to a boiling heat, and seal it up as fruit is sealed, it will not candy. At least, I have kept it thus for two years, as clear and fine as the day it was sealed up.

Queens Laying Drone and Worker Eggs.

On page 198, of the current volume of the Bee Journal, Mr. Dadant says—"I think that the queen finds less enjoyment while laying in drone than in worker cells; and that she lays in drone cells only when compelled by want of room, or when hurried by the desire of laying in the height of the breeding season." I do not know whether the queen finds any enjoyment in laying in drone cells, but I do know that a queen will lay in drone cells when not compelled by want of room, and this not in the height of the breeding season.

In reply to Mr. R. Bickford, in the Bee Journal of February, 1868, page 147, I submit that if the queen lays in worker cells because she understands that by so doing she will produce a worker or female progeny; then she lays in drone cells because she understands that by so doing she will produce a worker or male progeny. Logical conclusion. The same understanding that causes her to lay in worker cells, in order to produce workers, would cause her to open the mouth of the seminal sac, in order to produce fertilized or *worker* eggs; and when laying in drone cells, in order to produce drones, would cause her to close it, in order to produce unfertilized or *drone* eggs. It can require no more knowledge to open and shut the seminal duct, than it does to open and shut the oviduct.

Again—if the queen instinctively lays in worker cells, then she instinctively lays in drone cells. Logical conclusion. The same instinct that causes her to lay in worker cells, in order that workers may be produced, would cause her to open the mouth of the seminal sac, in order that impregnated *or worker* eggs may be deposited; and, when laying in drone cells, it would cause her to close the mouth of the seminal sac, in order that unimpregnated or *drone* eggs be deposited. If instinct causes the oviduct to open and shut, it may cause the seminal duct to open and shut. Ye wise ones, either deny the premises, and say the queen does not lay at all, or accept the conclusion.

J. H. Thomas.

Brooklin, Ontario.

[For the American Bee Journal.]

Mr. Editor:—R. Bickford's troubles, described in the February number, have induced me to send you my plan of getting bees out of honey boxes.

Place an empty barrel anywhere about the apiary to suit your convenience. Remove the boxes from the hives, and place them in it; then lay a dark cloth over the top of the barrel, leaving a space at one side just large enough for one or two bees to crawl out at a time. You may then leave for other work, and return at your leisure, without fear of finding any honey carried away by robbing bees.

I have tried this plan several years, sometimes placing a dozen boxes in a barrel at one time; and never yet knew a bee to return to the barrel for honey, or a cell to be uncapped by its own or other bees.

If any one has a cheaper, quicker or easier way, that is not patented, I should like to hear of it.

John L. Rice.

Rensselaerville, N. Y.

[For Our American Bee Journal.

Facts for Bee Men.

In the Report of the Commissioner of Agriculture for the year 1863, page 539, R. Colvin says:—"It should never be lost sight of that, although the *drone* progeny of a queen reared from a pure Italian egg, but impregnated by an impure or even native drone, may be pure Italian, (which is now considered by Europeans, as well as many American breeders, as an established fact)." Now, I do not agree with R. Colvin, L. L. Langstroth, and others, that a queen thus impregnated, can produce any pure progeny, either male or female. I tried that process several years ago, until I was satisfied they did not produce pure progeny.

Nor do I believe in the doctrine that the size of the cells has anything to do with the fecundation of the eggs, by pressure. As the queen backs into the the cells, to deposit her eggs, I have frequently seen her depositing eggs in cells just commenced; eggs sticking out as far as the edge of the cells. There can be no pressure of her abdomen at all. Those eggs thus laid in worker cells, invariably hatch workers.

I would advise all who wish to keep their bees pure, not to breed from drones whose mother is impurely fertilized.

Bees can be improved by careful breeding, as well as any other stock. Whilst at Kelley's Island, raising queens in 1866, I commenced by picking out of the first lot of queens hatched, one queen. She was very large and light-colored. After she had deposited eggs six days, I removed her and let her bees construct queen cells from her eggs. When they were capped over, I cut them out and inserted them in nuclei. When they hatched, I picked out the largest and lightest-colored again, and so on until I had raised the eighth generation that year. In 1867, I raised five generations, and in 1868, five more—making eighteen generations in three years.

Most of the queens thus raised I put in my own hives at home and others in the vicinity; so that I could test them and pick out the best each year to breed from. By careful breeding I have succeeded in producing very large and light-colored bees. When we take the same pains in breeding our bees, that the Vermonter does in breeding his sheep, we will find that we can put yellow bands on them, as easily as he can put wrinkles on his sheep. I am in for improvement.

Small bees are more apt to sting than large ones.

Aaron Benedict.

Bennington, Ohio.

A large swarm of bees may weigh seven pounds, and others gradually less, to one pound, Consequently, a very good swarm may weight five or six pounds. All such as weigh less than four pounds, should be strengthened, by uniting to them a less numerous swarm.—Wildman.

[For the American Bee Journal.]

Reply to Mr. J. H. Thomas on the Purity of the Queen.

In contradiction of the theory of Mr. J. H. Thomas, as given in the March number of the Bee Journal, and which seems to mean that all queens whose workers have three rings, have mated with pure drones; I maintain, as I have already stated in the September number of the Journal, that *color alone is not sufficient* to establish the purity of the queens; but that the slender form, the tapering abdomen, and the thick greyish hairs around the abdomen are necessary also.

No doubt friend Thomas has only purely impregnated queens in his apiary; at least he thinks so. But there are in his vicinity some careless bee-keepers; let us suppose that one of his pure drones mates with a black queen; the progeny will be half-breed. If that half-breed progeny mate with a pure drone, the daughters will be three-fourths Italian, and so on. Then let one of these three-fourth Italian drones mate with one of his pure Italian queens; does friend Thomas have eyes keen enough to detect the change, if he relies only on color? His three-banded seven-eighths Italian bees will no longer be pure in the full meaning of the word.

The first importers of Italian queens committed a serious mistake, in importing German bred queens, and in looking only at the color. For, notwithstanding their golden hue, so much loved in Germany and so loudly extolled here, I claim that most of the German bred queens, used as breeding stock, are more or less tainted with *black* blood, because in shape the workers are not all alike in all the hives, and their form is very different from that of Italian imported bees.

Furthermore, the best queen breeders in Italy, living at the foot of the inaccessible Alps, cannot meet the light color so fashionable in Germany. Their endeavors in this direction are always frustrated by the drones of their neighbors, and their bees invariably revert to the typical color, such as was known and sung by Virgil two thousand years ago.

Ch. Dadant.

Hamilton, Ills.

[For the American Bee Journal.]

The Bee Disease.

I have noticed, in emptying the hives in which my bees died last fall, that the honey in the lower uncapped cells was very thin and watery. My bees also obtained honey from a so-called honey dew last summer. But bees north of me did the same, and have not died. Can this disease be connected with the fact that the bees cast no swarms during the season?

C. E. Thorne.

Selma, Ohio.

THE AMERICAN BEE JOURNAL.

WASHINGTON, MAY, 1869.

☞ THE AMERICAN BEE JOURNAL is now published monthly, in the City of Washington, (D. C.,) at $2 per annum in advance. All communications should be addressed to the Editor, at that place.

☞ We have added four pages to this number of the JOURNAL, without being able to insert all the articles now in hand. Regarding the favors of our correspondents as evidence that the interest felt and frequently expressed by them for the success of the BEE JOURNAL, is sustained and growing, we make every effort in our power to present their communications to our readers without undue delay, but find that we cannot always accomplish what we constantly desire.

☞ Our readers will find in this number of the BEE JOURNAL, interesting communications from correspondents in Germany, England, and the Canadas; besides the usual number and variety of contributions from practical bee-keepers in almost every part of the United States.

☞ If the process of securing the pure fertilization of queen bees announced by Dr. Preuss, as detailed in the present number of the BEE JOURNAL, proves efficient, as we presume it will, another important advance in operations essential to successful bee-culture, will have been achieved. It comes in season to be availed of by those engaged in queen-raising, who, we trust, will communicate the result of any trials they may make.

☞ In our present issue we give a further sketch of the debates in the German Bee-keepers' Convention at Darmstadt, last fall.

The process for introducing queen bees promptly and safely, used and recommended by Mr. Uhle, deserves trial as that of a bee-keeper of large experience. The *Bienenzeitung* of March 15, contains an extract of a letter to Mr. U., in which the writer states that he had tested the process, with success, in the following manner: On the 7th of August he removed the queens from two colonies of black bees, A and B. After feeding each colony with a wine-glassful of diluted honey scented with grated nutmeg, he dipped each queen repeatedly in the liquid, and gave the queen from colony A to colony B, and that from colony B to colony A, setting each at liberty directly among the bees. Next morning he found each queen hale and hearty in her new home, and engaged in laying eggs. He then caught and killed both, and substituted for them two Italian queens dipped in the scented liquid and immediately liberated them among the bees, as before. This second experiment was quite as successful as the first. The process may thus be tested, without risking the life of a valuable queen.

☞ We have received several numbers of the "*Journal des Fermes et des Chateaux*," a new periodical recently commenced in Paris, and largely devoted to improved and rational bee-culture. It is well edited, and cannot fail to be serviceable to the accessory branches of rural economy which fall within its plan.

We have received a specimen of "L' APICOLTORE," an Italian Bee Journal, published monthly at Milan, by the Central Association for the Encouragement of Beeculture in Italy. It advocates the introduction of movable comb hives, and the advancement of beeculture by the adoption of a rational, scientific, and systematic mode of managing bees.

No. VI of Dr. Packard's "*Guide to the Study of Insects*," has been published, concluding the account of the Lepidoptera (butterflies, moths, &c.) and the beginning of the Diptera, including the various species of flies of this country. This number contains a full page steel plate and numerous illustrations on wood, well executed. Four numbers more will complete the work. It is published in parts, at fifty cents each. Send orders to Dr. A. S. Packard, Jr., Salem, Massachusetts.

The "itemizers" sometimes misapprehend matters strangely, and present their misconceptions very absurdly—as witness the following, now "going the rounds:"—

"It is stated that a swarm of bees to the number of fifty can be packed into a sponge saturated with honey and safely transmitted from one point to another through the mails. If a mail robber should chance to open one of these packages without being aware of its nature he would soon be taught a stinging lesson."

Michigan Bee-keepers' Association.

Pursuant to notice a large number of bee-keepers met at Jackson, Michigan, on the 7th of April last, to organize a State Association, and to discuss questions of interest to those engaged in bee-culture. The following named gentlemen were chosen officers for the ensuing year, viz:

President—Ezra Rood, of Wayne.

Vice Presidents—J. H. Townley, Tompkins; Rev. J. G. Putman, Dowagiac; A. Harwood, Maple Grove.

Secretary—A. J. Cook, Lansing.

Treasurer—R. G. McKee, Lansingburg.

Executive Board—Martin Metcalf, Grand Rapids; A. F. Moon, Paw Paw; C. L. Balch, Kalamazoo; ——— Hoff, Jonesville; ——— Tyler, Detroit; O. E. Wolcott, Byron; G. Smith, Lexington; —— Hastings, Cass county; L. Foster, Ann Arbor; J. T. Rose, Petersburg.

The Convention continued in session two days, and a number of questions, proposed by a committee, were discussed; but no regular report of the proceedings has been furnished to us.

[For the American Bee Journal.]

The Season of 1868.

Bees did very poorly here last season. I had fifty hives last spring, all in good condition; and the prospect early in the season was very good. I had drones flying on April 15th; and while the crab apples were in bloom, most of the stocks stored more or less honey in the surplus boxes. But, after the crab apples were done blooming, bees almost ceased to work, and killed off their drones in a few days. White clover was tolerably plenty, but I could scarcely ever find a bee on it. I did not hive a single swarm, and did not get over a hundred pounds of honey.

C. T. Smith.

Trenton, Ills., March 24, 1969.

Bonner says—"I have often had good hives, with few or no drones in them, during the whole year.

[For the American Bee Journal.]

The Truth of the Dzierzon Theory.

Mr. Editor:—I see on page 90 of the Bee Journal for November, 1869, that Mr. J. H. Thomas, of Brooklin, Canada, claims that the Dzierzon Theory of the reproduction of the honey bee is not true, and says that Mr. John Lowe, of Edinburgh, raised from an Italian queen, fertilized by a common drone, workers and drones which he called hybrid in their character, and which bore unmistakable evidence of the influence of the male parent. Mr. Thomas fully endorses the conclusion arrived at by Mr. Lowe, that drones are, in some way, affected by the act of fecundation.

My experience is different from that of Mr. Lowe and Mr. Thomas. In the year 1865 I had two black queens which were fertilized by Italian drones. Their worker progeny was handsomely marked in part, and the remainder was black bees. When the drones made their appearance, I examined them to see whether they bore Italian marks. I suppose I have caught hundreds of them for examination, and found not one that showed the least indication of Italian blood. I also caught drones from other stands, and laid them side by side, for the purpose of detecting a trace of Italian blood, if any could be observed; but could perceive nothing warranting such an inference.

Now, Mr. Editor, I have in my possession the first volume of the Bee Journal, published in Philadelphia in 1861, containing an article in which the Baron of Berlepsch states that among twenty common queens raised in his apiary and fecundated by Italian drones, which produced a more or less mixed worker progeny, there was not one drone bearing the slightest resemblance to the characteristics of an Italian drone, all being thoroughly of the common race.

Hence I am forced to believe the theory of Dzierzon will stand, in defiance of all investigation of the subject.

In conclusion, allow me to ask Mr. Thomas if he will tell me how many black queens he has raised, that were fertilized by Italian drones, whose drone progeny, as well as the workers, show positive marks of the Italian blood?

H. Rosenstiel.

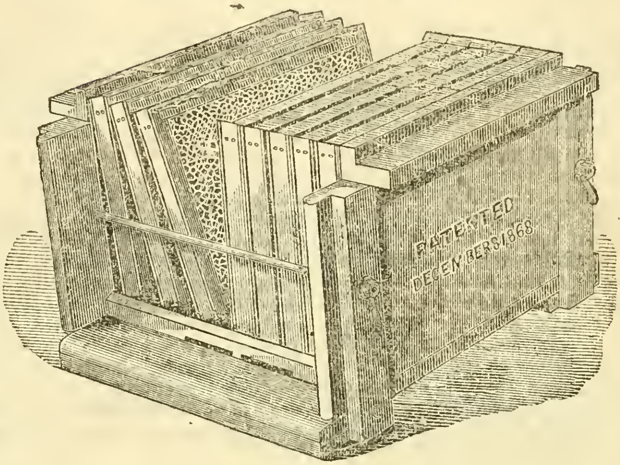
Lena, Ills.

A swarm of bees and a bountiful store of wild honey were recently found in a tree by woodchoppers on the west side of the Sierra Nevada mountains. The incident is recorded as the first discovery of the kind on the Pacific slope. There were no wild bees beyond the Sierras when that portion of the country was first occupied by emigrants from the Atlantic board; but it was soon discovered that bees imported from "the States" thrived well, and several persons who engaged early in the business acquired large fortunes from the production of honey for the markets.

It cannot be denied that bees have their *vices*, as well as their *virtues*.—Bonner.

[For the American Bee Journal.]

A. P. Durant's Patent Hive.



The hive represented by the annexed cut is the most simple and the easiest managed of any that I have ever seen. I think it is perfectly adapted to persons handling bees. I used it last season, and found it far ahead of my expectations. It is so arranged that I can take out the frames without injury to the bees or combs, by loosening the iron rod a little. The side board is loose, and comes any required distance, or can be taken off entirely. The frames are rabbeted at the lower end, resting on a shoulder or a crossbar.

I make my frames 10⅜ inches deep and 15 inches long. I am not confined to any particular number of frames with this hive. I make my bottom board wide enough to receive frames for a large stock of bees; or, if my swarm is small, I use fewer frames. I put a frame on the top, to receive honey boxes. This frame and the cap are not shown in the cut.

I see, in the April number of the Bee Journal, that Mr. Quinby has got up a hive in which the principle of handling the frames, if I understand it, is the same. The first hive I got up, I set the frames on the bottom board. I do not like that as well as setting them on the crossbar, as shown in the cut. The bottom bar of my frame is three-eighths of an inch from the bottom-board.

I see that some do not like a patent hive. Very well, I cannot help it now. The thing is done and gone. I obtained a patent on this hive December 8, 1868, number 84,805. What I claim as my invention is, Bottom-board A, Bars B B, Frames C D, Side-pieces E F, Connecting-bars G G, Frame H, Cap I; all constructed and arranged substantially as set forth.

Inquiries from readers of the Bee Journal, concerning this hive, will receive due attention and prompt answers, if addressed to

A. P Durant,
Athens, Ohio.

April 10, 1869.

[For the American Bee Journal]

The Native Honey Bee of Australia.

I see that on page 110 of the American Bee Journal are quoted two lines from the *New York Tribune*, to the effect that "in Australia the bees are as large as horse-flies, and do not sting." This seems ridiculous enough, but I have no doubt that the remark is intended to apply to the native honey bee of that country, and that its apparent absurdity arises entirely from misprint. If we bear this in mind, and substitute *house*-flies for "horse-flies," the absurdity vanishes, and the information conveyed becomes moreover perfectly correct. It is a curious fact that the apparently powerless Lilliputians are stated to be quite capable of holding their own, and even of successfully defending their nests against what might well be considered an irrisistible attack of the comparatively gigantic and well-armed European bee, which has been introduced by the colonists, and which has flourished and extended itself through the land to an almost unprecedented extent. Their mode of defence is described as being summary and effective, although their tactics may be deemed simple in the extreme. They merely grapple with the huge intruder, bite off her wings and legs, and in this helpless condition thrust her out of the nest!

In September, 1863, I received a beautiful nest of these remarkable insects, the scientific name of which is *Trigona carbonaria*, and which nest is now deposited in the British Museum. Its inhabitants were alive when shipped from Brisbane, but had unfortunately become defunct long before the conclusion of their voyage.

If wished by the Editor of the American Bee Journal, I shall be happy to forward a copy of an interesting description of this nest and its architects, from the pen of Mr. F. Smith, the distinguished hymenopterist, who was at that time President of the Entomological Society, and who is at the head of the entomological department of the British Museum.*

T. W. Woodbury,
("A Devonshire Bee-keeper.")
Mount Radford, Exeter, England, December 21, 1868.

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*We shall be pleased to receive the description referred to above.—Ed. A. B. J.

[For the American Bee Journal.]

Improved Method of Swarming.

Mr. Editor:—In the March number of the Bee Journal, page 170, Rev. P. R. Russell, of Bolton, Massachusetts, gives his plan of swarming, which would do very well, provided his bees would start the queens from eggs deposited each on successive days. But I am afraid that about the time he would get his swarm from number three, he would have three if not twice three queens hatch, all within an hour perhaps. Could he change number one from stand to stand so fast as that, and have bees return from the fields too to make new swarms? My opinion is that he could *not*, and his plan would fail. But suppose he *succeeded* in getting a swarm from each of his ten hives, by the time he got through swarming his number one would be so filled with honey by these returning bees, that before number one raised a queen, she would have no room to lay eggs. Every cell would be filled with honey in the brood combs, as fast as the young bees hatched out.

I do not want Mr. Russell to think that I am criticising his plan from any ill will; but that I do so lest some new beginners should be led astray, and, failing at the very start to accomplish all they aimed at, be induced to abandon bee-keeping as a poorly paying business—as many of our Kentucky bee-keepers are doing, because their bees died this winter. To such I would say, try it a few years more; do not become disheartened. Suppose we farmers had quit farming two years ago, because we raised only six or eight bushels of wheat or twenty bushels of corn per acre, where would we get our fat Durhams, our fat Berkshires, or *old* Bourbon? But, for fear some temperance bee-keeper should say my head is swimming, and that I am going too far from the subject, I will give my plan for swarming, and let Mr. Russell and others judge which is the best.

I propose to make an artificial swarm from number one, taking away two-thirds of the bees and combs to a new stand; but leaving the old queen on the old stand, to superintend comb-building and prevent too much drone comb being built. Nine days after this division, examine the new swarm and if there are ten queen cells sealed, cut out nine and make a division of each of the old hives, same as number one—giving to each new swarm a sealed queen, which will hatch in a day or two. All will go well, provided all the queens are successful after their excursion to meet the drones.

This is intended for those using movable comb hives, as it is supposed that no one who is *old fogy* enough to use the old box hives, would try anything new.

H. Nesbit.

Cynthiana, Ky., March 10, 1869.

P. S. Why do not correspondents *date* their articles, as some without date look *out of season*?

Do stinging bees, losing their stings, die?

[For the American Bee Journal].

The Honey-Emptying Machine.

Mr. Editor:—I notice while reading the Journal, that many apiarians are writing much in favor of using the honey-emptying machine for getting surplus; and as we have had a little experience in that line, I will give it for the benefit of the readers of the Journal.

Last season we got one of the machines made which cost seven dollars, and extracted a thousand pounds of very nice honey from the frames. It worked like a charm, emptying two frames, weighing eight pounds each, in four minutes after the capping was removed. We put the honey up in glass fruit jars, holding one quart each, and sent it to New York city, with our box honey. The box honey sold readily, at a good price; while the jars went *very slow*, at a low price. Now, the question is this—whether we can get enough more honey, by the use of the machine, than we can in boxes, to over-balance the difference in price and sale?

We shall use it for emptying combs that we wish to use empty; but not for getting surplus.

The winter has been long, having had but one day that the bees could fly out, this spring.

A. A. Baldwin.

Sandusky, N. Y., April 7, 1867.

[For the American Bee Journal.

Several Inquiries.

My bees are in hives piled in tiers, one above the other, in a not very dry cellar, with mats over them. I noticed, in raising the mats, that drops of water had collected on the underside. If the bees should partake of it, would it be injurious to them? Or would it answer the demand some writers make for bees in winter? I notice, too, that my bees are not in a healthy condition, from some cause. From the smell, I should judge it was foulbrood. If there are healthy stocks in the same room, will they become diseased by contagion? Perhaps some experienced bee-keeper will answer, and oblige

J. F. H.

[For the American Bee Journal.]

Albino Queen.

From an Italian queen bee purchased from Mr. Langstroth, I raised a queen, in the summer of 1867, that showed *white* instead of yellow rings. The *upper* half of every ring the whole length of her abdomen was *white*—the *lower* half as *black* as a crow. She was large, and appeared perfect in form. After repeated excursions, she was lost.

Could this queen have been internally deformed, or did her peculiar color deter the drones from mating with her?

H. Nesbit.

Cynthiana, Ky., April, 1869.

AMERICAN BEE JOURNAL.

EDITED AND PUBLISHED BY SAMUEL WAGNER, WASHINGTON, D. C.

AT TWO DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

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[For the American Bee Journal.]

Michigan Beekeepers' Convention.

In our last issue we noticed the organization of this Convention, and gave a list of the officers elected.

The next meeting is to be held at the time and place of the next Michigan State Fair.

The following is the official report, by the Secretary, of the discussions :

WHY DO BEES SWARM ?

Mr. Otis thought the primary instinct of worker bees was to store honey, not to reproduce their kind. For want of honey cells, they would destroy eggs and young in brood cells, and form queen cells. The queen is characterized by implacable hatred to other queens, and as these are hatched, if the worker bees would not permit her to destroy them, she would form a colony and swarm. He thought queen cells were never built except when there was a full store of honey, or when the old queen was disabled from accident or age.

Messrs. Baldridge, Moon, and Portman thought that, as with all other animals, the prime instinct of bees was increase of kind. They had known swarming to take place in a hive not more than half full of honey, and containing a young fertile queen. They also thought that a season rich in honey plants induced more early and frequent swarming.

BEST METHOD OF WINTERING BEES.

All thought there should be a dry uniform temperature, from 32 to 45 degrees. Should be kept in the dark, free from disturbance, and whatever they were in should be mouse-tight.

Messrs. Taylor, Baldridge, Townley, Otis, Conklin, and the President, argued strongly for housing. If put in cellar, it should be dry and quiet. Clay cellars were never good. If houses were built, the ground should be hollow and filled in with saw dust. Some advocated a room within a room. The President said he kept a snow bank near, and, to keep the temperature sufficiently low, would throw in snow when necessary. To winter well, bees should be numerous enough, have plenty of food, and some empty cells in which to cluster, to keep warm. Care should be taken not to overheat, as the exercise would cause overfeeding, which would fill their intestines with fæces and cause disease. Bees should be taken out on warm days, to extrude their excrement. Should have empty comb for eggs in the spring. Cloths and cobs should be placed in the space for surplus honey boxes, to absorb moisture. Good ventilation was urged by all the speakers. All thought that keeping the bees thus warm, or in uniform temperature, would save fifty per cent. in honey. Some had known good sized stands, when housed, to be kept on four pounds of honey.

Rev. Mr. Portman, with Metcalf hive, had been more successful in keeping bees on summer stands, than his neighbors had been in housing. He questioned very much if housing paid for the extra expense and trouble. With many others, he had known bees when buried under straw and earth to winter well.

Mr. Moon had experimented much. He said on summer stands ice would sometimes prevent good ventilation. Pure air was the great desideratum. He thought out-door wintering most safe. Bad air was the most fruitful source of disease.

Mr. Kent said if bees were thoroughly ventilated they would eat as much when housed as they would on summer stands, and, if not well ventilated, disease would settle among them.

Mr. Cook thought the extra heat in housing, without great vigilance, would sow the seeds of disease, and that beginners would run less risk by wintering on summer stands.

BEST METHOD OF ARTIFICIAL SWARMING.

Mr. Moon looked with little favor on artificial swarming. He thought no stand should be divided more than twice in the season; generally once was better. He thought natural swarming the best. Never lost a swarm. He could control the time of swarming as follows: Raise queens artificially, and by putting one in a large full stand, swarming immediately took place.

Rev. Mr. Portman said he raised queens in nuclei, and placing them in a hive, took frames containing young brood and workers, which he placed with them. Thought this was the best method of artificial swarming.

Mr. Otis gave what he thought the best modes, as follows: 1st. Take one frame of brood comb filled with eggs from the large stands; put these with a queen in a new hive. The adult bees are left in the old stand. 2d. Put empty brood and honey combs into a new hive; drive all the bees into this; then introduce bees from two other large hives into the old hive. If near swarming time, the old hive will surely have queen cells. From ten good stands he could safely make eighty in a good season; though it required much experience to produce such a large increase with safety. He did not raise his queens in nuclei, but in a full hive. Queens would always lay, or preferred to lay, eggs in small cells. Thus he could control the kind of eggs, by controlling the kind of cells.

Mr. Moon caused large well-filled stands to swarm by introducing queens; and, by examining, he found there were no queen cells in the old hive.

Mr. Thomas, of Canada, thought that a great deal was gained by artificial swarming. He left the bees till near the swarming time. He then took the card on which was the queen, put it into a similar hive, and placed it where the old stand had stood, removing the old stand to some distance. If the queen is on a worker brood comb, he placed it in the centre; if on a drone comb, he placed it to one side of the new hive.

Mr. Baldridge wished all to examine this point of position, as he thought it was always better to place it on one side. He thought the method given by Mr. Otis the best, as all trouble in finding the queen was obviated.

Mr. Rood had practised Mr. Thomas' mode with excellent success.

Mr. Otis thought that to succeed with bees you must become conversant with their natural history and workings. Following others will never do.

Will Bees Work in Boxes Partially Filled the Previous Season.

The President, Dr. Conklin, Messrs. Moon and Otis, all said that they would.

What is the Best Method of Procuring Surplus Honey?

Messrs. Portman and Conklin used boxes, placing one above the other, so that both would be filled without disturbing. Thus time would be saved.

Mr. Baldridge said that by uncapping two or three frames the bees would carry all the honey from below upward. Thus a large amount of honey can be obtained in a short time. Mr. Otis confirmed that statement. These gentlemen favored extracting honey from the comb, preserving the comb to be again filled, as comb is an animal secretion, and it takes twenty pounds of honey to form one pound of comb. And if one pound of comb would hold twenty pounds of honey, still they thought the difference in price would not make up for the loss of comb.

Mr. Baldridge thought much more honey could be obtained by using frames, and advised all to try storing in the body of the hive, which he thought the best.

Mr. Otis said he thought so too; the only trouble is eggs will be laid in the boxes. He preferred small boxes. It saved waste from cutting the comb.

Mr. Moon liked rack boxes best. Sometimes he obtained three tiers in a season. Preferred to place the boxes on top, but very near the main hive. He thought, as a matter of taste and price, it was better to leave the honey in the comb.

Mr. Balch preferred rack boxes.

Quite a spirited debate took place as to the policy of pumping. Most of those present seemed to think it a doubtful practice.

How to Remedy Foulbrood.

The President said he had tried all the ways he had heard of, and recommended, as the best riddance, burying bees, hive and all, so deep that there could be no hope of resurrection. In foulbrood the comb is dark, cells very concave, and there is a small opening in the cells.

Mr. Baldridge would adopt total destruction.

Mr. Otis would bury in the fall. In the spring would put them in a clean hive, and shut them up till all the honey in them was digested. He thought they would recover.

Mr. Moon thought that transferring to new hives is a sure cure.

Best Plants for Bee-pasturage.

Mr. Thomas said Alsike clover was excellent for bees, as it was in bloom twice as long as white clover, and par-excellent for stock, as it yielded twice as much fodder in bulk as red clover, and was better feed. He has had eight bushels of seed to the acre. It is better on strong soil, but exceeds red clover anywhere. Lodges, as he has seen it five feet seven inches in length. Sows early, five pounds to the acre in Canada. Does not fruit much the first year, and only the first blossoms produce seed at any time.

Mr. Baldridge thinks it much better formed to resist frost than red clover, as the multiple of primary roots was carried much further. It is never thrown out by frost, or killed by water standing on the ground for three or four weeks in the spring. Melilot, a biennial, was better for bees, but otherwise worthless. He thought there was but one variety of Alsike.

Can Spare Queens be Wintered Over.

Rev. Dr. Portman said they can, by taking them with a few bees into a cellar and inverting the receptacle.

Best Method of Introducing a Queen.

Rev. Mr. Portman used to cage his queen; but now he covers her with honey, and thus succeeds admirably.

Mr. Conklin said when honey is scarce he would drive the bees into a cap, then daub the queen with honey, and send the bees back. By the time they have taken the honey from her they would surely be friendly. If honey was plenty, he followed the plan recommended by Mr. Portman.

Mr. Baldridge said, to change queens, just kill the old one, then throw her in the midst of the bees, and in their grief they will gladly receive the introduced queen.

Mr. Balch said beginners had better use the cage, as recommended by Mr. Langstroth.

PROPER TIME TO INTRODUCE HONEY BOXES.

Rev. Mr. Portman said if the season is good and the stock strong, put on the honey boxes early. He would put two swarms together, if young, and place the boxes in two or three days; if sooner, the queen may lay eggs in the extra honey comb.

The President thought that honey boxes should be placed as soon as the bees drum on the hive.

CAN HONEY BE EXTRACTED FROM COMB THAT CONTAINS UNCAPPED LARVÆ WITHOUT THROWING OUT THE LARVÆ?

Mr. Otis thought this matter of little importance.

Mr. Moon thought differently. He did not wish an extracting machine if it destroyed the larvæ.

CAN QUEENS BE REARED AND FERTILIZED IN WINTER?

No person present could answer affirmatively.

WHY DO SOME QUEENS LAY ONLY DRONE EGGS?

Messrs. Otis and Cook showed that it had been fully demonstrated by scientists that this was owing to the eggs being unfertilized. This is one of the very few cases among animals, where unfertilized eggs would develop. Unfertilized queens would always lay drone eggs. Fertile queens could lay drone or worker eggs, by controlling the seminal sac.

IS THERE SUCH A THING AS A FERTILE WORKER?

Several gentlemen said they had seen workers laying eggs.

Messrs. Otis and Cook took ground that these were immature queens, nevertheless, which, so soon as there was a necessity, would deposite eggs. Mr. Cook showed analogous cases among other animals.

MOVABLE FRAMES AND BEE-HIVES.

Mr. Portman thought movable frames were very desirable. No one could afford to do without them.

Mr. Otis thought we should have that perfect control of the bees, which could only be gained by using movable frames.

A resolution was passed that all from other States in attendance at our meetings be considered honorary members.

A resolution was passed that we support the AMERICAN BEE JOURNAL, and request its publication semi-monthly.

The Secretary invited the members to visit the Agricultural College. Mr. Moon hoped that all would accept the invitation, as he had visited the institution and had never enjoyed a visit more in his life.

Mr. Baldridge presented an invitation to all the members to visit the North American Beekeepers' Association at its next meeting.

[For the American Bee Journal.]

Answer to the Question, How Can I Winter My Bees Successfully?

Almost every number of the BEE JOURNAL at this season contains articles on wintering bees, and "legion" are the plans suggested. One would winter on the stands; another would winter in the house. One would bury; another would put in the cellar. One ventilates at the top; another at the bottom. One uses corncobs; another uses straw mats. One would cover the passage through the honey-board with wire cloth; another would not use the wire cloth at all. I fancy a novice would be led to suppose that it was extremely difficult to hit upon a proper plan; and that, at best, there was a great deal of trouble attending the wintering of bees. Now I would say to my fellow beekeepers that it is quite as easy to winter bees as to winter horses, and far less trouble. All this talk about corncobs, straw mats, wire cloth, and the various methods of ventilation, will do well enough for those who have time to attend to it. Practically, however, it is of no account. To winter bees successfully one must first understand what is the natural condition of bees during the winter; then winter them so as to secure that condition; and nothing further is required.

It may be asked—what is the natural condition of bees during winter? I answer, it is a semi-dormant state—a sleepy, stupid condition. The reason why such a state is the natural one, may be given as follows: First, it is a state or condition in which the least amount of food is required; hence the bodies are less distended under this condition, and the excrements are more easily retained. Secondly, a semi-dormant state is secured at a temperature calculated to carry off by evaporation the watery substances from their bodies, thus securing a more healthy condition of the stock. Thirdly, the temperature being always above the freezing point, the bees are able to reach any part of their hive at any time for food. Fourthly, bees wintered in a semi-dormant state always come out in the spring healthy and vigorous. This fact alone is sufficient to prove it to be a natural condition for winter. How then can it be secured? Says one, if I have a room in which I put fifty stocks, it is all right; but if I have only eight or ten in it, it is all wrong, for it is too cold. Says another, I find the same difficulty in constructing a place to winter bees; if I make it warm enough for half a dozen stocks, it is too warm for forty or fifty stocks. Allow me to say that such wintering places are not the thing. A properly constructed wintering place for bees may be large enough to winter five hundred stocks in a semi-dormant state; yet a single stock would winter equally well in the same place. Such a place is nothing more nor less than an underground cellar of proper dimensions. Do you laugh? Laugh on, then. But if you construct such a cellar as I am about to describe, you may, next fall, as soon as the earth is mantled in snow, step out some morning and carry your bees into it; never mind your wire screens, corncobs, or Kidder-mats; never mind whether you have upward or downward ventilation, or ventilation at all; if sufficient air gets into the hive for breathing purposes, close up the entrances and bustle them in—close the door, lock it, and go about your business; and, if every stock has sufficient honey when put in, every stock will come out laughing in the spring. Then you will have something worth laughing at.

Now for the cellar. First, build large enough. You cannot spoil it by building it too large; but you can spoil it by building it too small. Second, wall it up with a hollow brick wall. Third, cover the bottom with water-lime as you would a cistern; it will become as hard as stone. Fourth, let it be a least eight or ten feet in depth.

In such a cellar, if large enough, you may winter five hundred or a thousand stocks; and if you have only one stock, it will winter these equally well. A cellar twenty feet by thirty is a good size, and will winter from one to two hundred stocks, without ventilating; and if ventilated, will winter five hundred stocks, and perhaps more. In such a cellar, a thermometer will range at from 35° to 40° F. above zero, when there are no bees in it. It will take a large number of bees, in a cellar of the above size, to materially affect the temperature. In such a cellar the bees are not affected by the changes of the weather; even a thermometer will not vary more than four or five degrees during the winter.

But, says one, I really think the hives should have upward ventilation. It is like the doctor's bread pills, it will do them no harm in such a cellar, if it does them no good. Very strong stocks in a very tight hive might be the better of upward ventilation; but stocks are rare indeed that require more ventilation than would be given by empty honey-boxes remaining in the hive right side up. If, however, you have time to attend to it and choose to ventilate, you can do so in any way that pleases you best; for in such a cellar you may remove the honey boxes, leaving the passages open, and the bees will hardly come out. Mr. Gallup is quite right in that. But if you choose to put on wire cloth to quiet your fears, and set the thing at rest, be it so; and do not be afraid that some hot blooded bee will gallup up to the wire, and finding himself fast, set up such a horrid yell as to arouse all his sleeping companions; for such will not prove to be the rule. And if Mr. Gallup will pass around and quietly lay his piece of wire-cloth over his bees, he will find what I say to be true—provided they are now in a semi-dormant state. But says another, I am not able to build such a cellar. That does not do away with the fact that bees can be wintered in such a cellar successfully, and with less trouble than we now winter our horses. Often a stable for two horses costs as much as would a cellar of the above dimensions. Then we require to feed and tend our horses, after having provided them with comfortable quarters, while the bees feed and tend themselves. Surely they are entitled to good quarters.

I shall lay out more money for feed for my poney this winter than his head is worth; and the profit derived will simply be the luxury of riding. Every ten stocks of Italians I winter will, in the spring, be worth more than the poney, and require no outlay for feed or tending; and the luxury in the form of surplus honey, taken from them last fall, is fully equal to the luxury of riding, and quite as profitable. Therefore I say—"keep bees! keep bees!" and provide good winter quarters for them. If unable to provide as good winter quarters as described, approach as near to it as possible.

J. H. Thomas.

Brooklin, Ontario.

[For the American Bee Journal.]

Wintering Bees on Their Summer Stands.

To-day, February 13, 1869, my bees are making their first general issue, and although the thermometer only reached 47° at three o'clock this afternoon, yet the atmosphere is dry, soft, and mild; and, with one or two slight exceptions of a few minutes, the sun shone out brightly all day. Though the thermometer did, on several days during the winter, reach about the same figures, yet other causes, such as high or damp winds, prevented a general flight. But this morning the bees seemed bent on having a general frolic; and before the thermometer reached 36°, they began to sally out in great numbers. Those of them that were lucky enough to keep themselves in the sunshine were all right; but a few seconds out of it chilled them beyond the power of flight, and falling on the snow (which is about a foot deep on a level) they perished. In fact a few minutes in the shade, at any time during the day, was sufficient to chill many beyond the ability of flying, and a good many were thus lost.

The winter so far has been very favorable in this section for wintering bees on their summer stands. We had comparatively little wind, or cold or warm weather—the cold not continuing long enough at a time to prevent the bees from supplying themselves with honey (if it was in the hive), by either moving to it, or moving it to themselves. Neither was the warm weather sufficient to cause many bees to sally out and be lost. We have not had more than half a dozen zero nights this winter. On the morning of February 8 the mercury was 6° below, which was the coldest of the season by three degress. Unless we yet have something worse than we have had, out-door wintering will be a success here this winter. But still, if a man had his bees in good winter quarters, he would be saved a good many ague fits of fears about them, when for snaps of a week or fortnight the thermometer shows from 10° to 20° below zero, with a tornado to match—holding out a fair prospect of a score or two of empty hives.

On looking through my yard to-day, I found my bees flying briskly at all the hives, but one. I am trying a new plan with my movable frame hives (eighty-three in number) this winter, by placing them in two rows, back to back, and filling them with shavings; then setting two rows again on top of the first, and filling in again; and then two rows more on top of those—making them three tiers high, and putting a temporary roof over the whole. I see they are all alive yet, though quite a number of them were rather weak, in consequence of being divided in September (in order to raise queens) and were not united again, as they should have been.

My non-movable comb hives (ninety-one in number) remain on their summer stands, and all but one appear to be in good condition. I think from their actions they are breeding considerably. They seem quite anxious for water, and are taking it as fast as it melts from a small pile of snow, about the size of a peck measure, on the south roof of the barn, but which is now about used up, and I have thrown up some more. The whole of the wet portion of the roof is black with bees, and they do not let a drop of the water escape, but work clear up to the snow. I find by an occasional young bee thrown out of the hive, that some of them are hatching.

The usual quantity of bees are being wintered in this region. The last season, though quite poor for honey, produced swarms enough to supply the previous winter's loss. I hear nothing of "that bee disease" in this section. *That* is a puzzler. It takes me entirely "off my pins." I see no explanation that seems adequate to solve the problem. The most rational conclusion of all the irrational conclusions, is the *irrational conclusion* that the scarcity of forage induced the bees to forage on some poisonous plant.

I intended to send this two days ago, but delayed doing so, thinking that I would to-day go in the country and see how my apiary there (six miles distant) has wintered. I have not seen it for several weeks; but the weather clouded up on Saturday, and yesterday morning was as chilly and disagreeable as Saturday had been pleasant. The wind was north, and the mercury stood at 22° to 24° all day. This morning it was raining, with the lower current of air northwest and the upper current southeast; and it has been about "which and t'other" all day, alternating between snow and rain. But the southeaster has rather got the better of it, and raised the thermometer to 38°. Between the two, however, they have cheated me out of my country visit, so that I will trouble you no more at present.

WM. M. STRATTON.

WEST TROY, N. Y., Feb. 15, 1869.

[For the American Bee Journal.]

Wintering Bees on Their Summer Stands.

MR. EDITOR:—Having to use my cellar to store a large crop of potatoes, I concluded to winter a part of my colonies on their summer stands. I moved them gradually in the fall, until I had them in a row running north and south, with about twelve inches space between the hives, which were set upon scantling, some four inches from the ground. On the approach of cold weather I drove in stakes three feet long in front and rear of the hives, and about eighteen inches from them, to which I nailed some old fencing plank—thus making a rough box, twenty feet long by four feet wide, three feet high in front and two in rear. The caps were removed, and the honey-board raised all round the thickness of a four-penny nail. All the holes in the honey boards were closed, so that the ventilation was at the sides, front, and rear, instead of at the top immediately over the bees.

After arranging a board over the entrance of the hives, to prevent the straw from falling down in front of them, the space in front and rear, and between the hives as well as over them, was packed with perfectly dry wheat straw; and over that a roof of boards, making all secure from rain and frost.

I examined the hives about the 10th of March and found them in fine condition. They had a good supply of sealed brood, and had not consumed more than half of their winter stores. The straw packing preserved an equal temperature; and it was only on a few warm days during the winter that the bees from these hives ventured out, and when they did so the air was so warm that none of them became so chilled that they could not regain their hives.

The greatest objection to this plan is, that the hives must be set close together (to save the expense of a large shelter), and the bees do not readily locate the position of their respective hives, the entrance to all being just alike. And as they do locate themselves before the weather is permanently warm enough to remove the shelter, the hives must be gradually removed to where they stood in the fall, as I do not like to have them less than three feet apart. This might be more easily done, by arranging the hives in two rows, removing every alternate hive to the front or the rear, the distance required between the rows, as bees readily accommodate themselves to a change of position in the line of their flight.

I have wintered in the cellar a few stocks, which I bought about the first of January. They are in common box hives, and were set immediately on the south floor of the cellar, with an opening in the top, one inch by seven. They have wintered in a fine condition, and have been set out only about two weeks.

By the way, these hives were moved twenty miles in a common two horse wagon without springs of any kind, and over a rough, frozen road. They were simply turned bottom up, and a coarse cloth tacked over the open end of each hive. The jarring and jolting caused the bees to fill themselves with honey, and I suppose to feed the queen, for they commenced breeding at once, as upon examining the hives about three weeks afterwards, I discovered young bees just emerging from their cells.

I do not like Mr. Quinby's plan of wintering bees in box hives, by turning them bottom upward; as I think bees should always cluster below their stores—which they cannot do in that position. The necessary ventilation is easily given, by a few holes in the top of the hive; through one or more of which, also, the bees if short of stores, are easily fed by inverting a bottle of syrup or honey over one or more of them.

Although this communication is much longer than I intended it should be when I commenced writing, I cannot refrain from saying a few words in regard to

VENTILATION,

which is one of the most important things in bee-culture, especially in wintering bees. A strong colony cannot be wintered in a room or cellar, the temperature of which is above the freezing point, without upward ventilation; and if in a close, well-made, painted hive, it will require the honey-board to be removed altogether—Mr. Miner to the contrary notwithstanding. He would have us believe that it is upward ventilation and eating cold honey that causes dysentery. I do not believe one word of it. Confine bees to a close hive, where they have no upward ventilation, and their warmth creates restlessness, they roam over the combs, eating enormous quantities of honey, become distended by accumulated fæces, and die by scores.

Mr. M. says look at the bees in nature's hive, the hollow tree, where they do well without upward ventilation. As if the hollow tree, with its porous lining of rotten wood, was not a very different thing from a close painted hive, which does not absorb dampness like the rotten wood. The hollow trees in Mr. Miner's country must be different from those here, if they have the cavity always closed at the top, and the entrance for bees always at the bottom of the hollow. Is it not as often at the top ?

Now, Mr. Editor, this following after nature for patterns for bee-hives, or anything else, is all stuff. Where else, in the name of common sense, would bees in a state of nature go but to a hollow of a tree, stump, rock, or something of that sort, whether it be suitable or not? Nature gives us crab apples, choke pears, fox grapes, &c., to the end of the chapter ; and it is man's province and duty to improve these things—which he has done by hybridizing, &c. The strong man, Samson, once found a colony of bees, with plenty of honey, in the carcass of a dead lion, where they were apparently doing well. They doubtless had ventilation enough, and would probably have done as well, or better, in the carcass of a dead jackass, it being smaller and more compact. But it does not follow from this that we should all turn out and kill lions or jackasses, to get their carcasses for bee-hives and their skulls for surplus honey receptacles. I hope Mr. Miner will not carry out his plan of copying after nature to such an extent as to advise anything of that sort; for while we have not many lions in this part of the country, we have a description or variety of the latter-named animal, having but two legs however, and should be sorry to see their carcasses filled with anything as sweet as honey.

With best wishes for the success of the BEE JOURNAL, I am truly yours,

J. R. GARDNER.

FANCY FARM, NEAR
CHRISTIANSBURG, VA., April 12, 1869.

[For the American Bee Journal.]

Feeding Rye Meal Broadcast.

MR. EDITOR :—I saw a notice in the April number of the BEE JOURNAL, that the Beekeepers were going to hold a Convention in Jackson (Mich), I accordingly packed a few greenbacks in my wallet, and started for the scene of operations ; where we had a very pleasant time, and everything passed off harmoniously. I suppose you have the proceedings of the Convention ; and I shall therefore leave you to judge of the merits of the discussions on the various topics. After we got through with the business of the Convention, finding we were only twelve miles from Mr. J. H. Townley's, Mr. O. E. Wolcott, of Byron, a very extensive and experienced beekeeper, and myself, concluded to take a drive out there and see if there was anything more to be learned about bees. When we arrived there, we found his apiary to consist of about fifty stocks of very fine Italians. The morning air was rather chilly, but it bid fair to be a pleasant day. Mr. Townley informed us, if it came off warm enough for bees to fly, he intended to feed them some rye meal which he had prepared for them. Accordingly, about 11 o'clock, the bees began to fly, and the order was to prepare the meal. We arranged a small platform on the ground, laid on a few pieces of empty comb, then scattered on some meal, and Mr. Townley took some of it and dusted the workers at the entrance of all the hives, to let them know that all things were ready. It was not long before the bees concluded to hold a convention on the rye-meal *platform* ; and it soon became evident that the platform was too small to accommodate all parties. Mr. Townley then commenced scattering meal on the grass. At first it looked as though there would be a great deal of waste attending that mode of feeding. But the bees very soon commenced leaving the platform and confined their labors entirely to the meal on the grass. As the bees became crowded, he gave them more space, until he had covered about twelve feet square; and in all my experience I never saw bees work more diligently on anything. Mr. Townley carried out and gave them by actual weight 22 pounds, and by four o'clock, when they quit work, I do not think there could have been over 4 pounds left, bran and all. The question is often asked, "can a country be overstocked with bees?" We concluded that was no longer the question. The question now is, "how much *rye* and *alsike* clover will the country produce?" There is another grave question for many to consider—"If the bees continue to manufacture such enormous quantities of rye for their own use, will not that stimulant known as *old rye* gradually increase in value, in spite of all the exertions of the *Ring* to induce Congress to reduce the tax?" Whatever others may think of rye, I am willing my bees should have my share, as I think very little of it for bread, and still less as a beverage. Now the thing we learned is this, the bees will work on meal more readily on the grass than on the table, as every bee left the platform as long as there was any meal to be gathered on the grass, and then reluctantly went to the platform.

JOHN T. ROSE.

PETERSBURG, MICH.

[For the American Bee Journal.]

Artificial Pollen.

In certain localities bees cannot find natural pollen as early in spring as they require it. Hence breeding is retarded, unless artificial pollen is given them. My method of giving it is as follows: It may not be the best, but I know it to work well. Take a shallow dish, or any number required—boxes two or three inches deep and twelve inches square are just the thing. Put in, to the depth of an inch over the whole bottom, Indian meal, oat meal, rye or buckwheat flour; then put in the centre of the meal a small piece of honey in the comb; set the dishes near or among the stock of bees, and if they have not got a supply of pollen and are unable to gather any natural pollen, they will accept the artificial without even "thank you." But if they have a supply, or can gather natural pollen, you cannot induce them to take the artificial; at least I cannot. I have seen a single stock in my apiary carry in a pint of meal in a few hours, and not another stock in the apiary, though there were some thirty or forty, would touch it. The cause of this was that all the combs in this stock containing bee-bread had been exchanged with another stock for comb that contained none. It did one good to see the yellow jackets work at that meal. The dishes should be covered or taken in when it storms.

J. H. THOMAS.

BROOKLIN, ONTARIO.

The *propolis* collected by the bees is of a resinous nature, has a balsamic odor, and is of reddish brown or dark color. It is supposed to be collected from fir or pine trees, or from the envelopes of the buds of many trees and plants, or their resinous exudations. It is exceedingly clammy when first gathered, but dries so rapidly that the bees which carry it home have, at times, much difficulty in dislodging it from their legs.

[For the American Bee Journal.

Pollen.

MR. EDITOR:—My bees are entirely destitute of pollen this winter. On a careful examination of different hives, not a cell can be found with any pollen in it. Nor was a single cell to be seen occupied with brood, up to the 20th of March, even in large colonies occupying eight frames in a hive. A little rye flour, left on the top of the frames a day or two since, appears to attract no attention. Perhaps it needs mixing with pollen in order to sustain young bees. Consequently no young brood need be expected till they can be removed from the cellar, which last year was on the 20th of April.

Perhaps those who have been familiar with movable comb hives for years, can give us some light as to whether the scarcity of pollen is confined to this year, or to this locality. Last year, in May, some of the central combs appeared so overloaded with pollen, as to make the brood quite scattering, In June, as the brood increased, the trouble vanished. By the 1st of August the hives were crammed with basswood honey, and gathered with little or no pollen. A long cold spell ensued till on September 21, frost closed up the bee accounts for the season.

My colonies, one hundred and ten days in the cellar, used 105 ounces of honey, each, and had eighteen pounds, each, left on the 6th of March.

H. D. MINER.

WASHINGTON HARBOR, (WIS.) March 22, '69.

[For the American Bee Journal]

How to Save Your Bees.

MR. EDITOR:—Mrs. E. S. Tupper says, 1: Never divide any stock until it is strong, both in numbers and brood. Until this is the case, the bees are better in one hive than two. 2. If a colony become strong *early*, leave it undisturbed, and get all the honey you can from it. 3. Never cripple the strength of a colony containing a fertile queen; as soon as you do this, her laying diminishes.

Here the idea is, have your colonies strong, and keep them so. This appears to be a fundamental rule in bee culture. But, if weak, what is the result? Why, their destruction. Well, cannot a few bees gather as much honey, in proportion, as the many? Of course they may. But this is not all. Heat also is required, to hatch, mature, and develope all the brood, prepare the combs, and evaporate the water from the honey. So few bees cannot generate the animal heat required.

Well, how can a colony be crippled? It can be done three ways at least. Kretchmer, in his Beekeeper's Guide Book, says—"The breeding is to a large extent dependent, 1st, on the strength of the colony; 2d, on the amount of food, (honey, bee-bread, and water); and 3d, on the season of the year." You can cripple your stock, then, by making it too weak for breeding purposes. To remedy this, add combs of brood ready to hatch. You can cripple your colony by depriving it of honey, pollen, and water; thus causing *the queen to cease laying*. The remedy is, to supply these in an artificial manner, when the natural production fails. Again, it may be crippled by an unpropitious season, as that of 1868. The honey and pollen may, in great measure, be cut off for months; as from the middle of July last until the close of the honey season. If *two months* constitute the *length* of the *worker's life*, during this season of the year, then all can see that if brood raising is cut off, in great measure for two months and a half, in the after part of the season, destruction certainly awaits them as the chilly days and nights approach; although they may have honey enough in store to winter them, if there were bees enough to generate the requisite amount of animal heat to keep them from chilling to death. When this last remnant of the stock is *dead*, how many do you find? One or two pints is all that can usually be found in or about the hive. Pretty conclusive evidence this, that these are the remains of a stock that has been *crippled* either *wantonly* or through *neglect*, or, it may be, from *ignorance*. Well, I ask again, what is the remedy? Harbinson, Gallup, and all the noted beekeepers answer, *feed during this scarcity* of honey and pollen *to keep the queen breeding*, so that the stock is replenished by living bees faster than they *die*. Whilst in quest of the nectar and pollen, or doubling stocks until there are bees enough, will you apply the remedies in future, and save your bees from a similar fate of 1868?

JEWELL DAVIS.

CHARLESTON, ILLS.

[For the American Bee Journal.]

Results of Wintering.

MR. EDITOR.—Last fall I sent you a description of a house in which I winter my bees. It appeared in the BEE JOURNAL for October, 1868. Mr. Gallup thought it would have been better if the sides were 10 or 12 instead of 6 inches thick. I will not contradict him in his theory. He is generally pretty much correct in what he says. I was glad to see him settle the Professor's business. I can sympathise a little with the Professor—to the amount of fifteen dollars and fifty cents, which I sent to him two years ago, but which he says he never received. I received from him in return, last summer, three Italian (?) queens, with one stripe just behind their wings; it was between a red and a yellow color. I thought they might be some of those dark colored queens, which good authority says are sometimes found among the pure breed. But, behold, their offspring was one half black and the other half one-striped. They never were worth the Express charges.

But, to come to the result of wintering my bees in the house above alluded to. About the middle of November I carried into the house 132 colonies of bees, and arranged them in four rows; two in the centre and one on each side, on shelves four deep; which left about two feet of a gangway between each two rows—which aided very well to examine them during the winter.

My hives weighed from 45 to 75 lbs. each. The empty hives, with comb and frames, will weigh from 32 to 36 lbs each. This will leave from 12 to 35 lbs. of honey in each hive carried in. The temperature in the coldest weather this winter was never below 40° F., and when it rose to 45° the bees appeared restless; which I could soon remedy by opening the ventilating tubes. I took them out the last week in March, weighed and examined them. They were all healthy; no mould on the combs, and very few dead bees on the bottom board. They weighed from six to eight pounds less, each, than when they were put in. Those nearest the ground had lost most weight, and those on the top the least; but none consumed more than nine pounds of honey.

One of my neighbors wintered his bees in a house similar to mine, but lost one half of his bees, and they consumed double the amount of honey compared with mine. But while my house was full, his was not half full of bees. Besides, he built his house late last fall. I built mine two years ago. The sawdust should be quite dry; or the house should be built in summer, so that it could dry thoroughly before bees are put in. My house was warmer this winter than last winter, which proves the above theory. I believe bees winter better outside, than if put into a cold room. They will consume not any more honey, besides getting the benefit of a warm sunny day, which we have occasionally during winter. My bees are now flying briskly. They have carried in about 200 lbs. of rye flour, and about five gallons of syrup. They like maple syrup best (and so do I,). To-day I noticed them bringing in pollen. I do not know where they get it; but they now refuse the flour.

Enclosed find two dollars for the JOURNAL, wishing it all the success it deserves. I could not do without it. I would say to every man that has a few colonies of bees, *subscribe for the* BEE JOURNAL. Get some hive with the movable comb, no difference whose patent—only this, if you winter out doors they ought to be high; but if you winter them as you ought to in this climate, in some dark, warm, dry place, the "shallow things" have many advantages over the others. Also, get some reliable book on the nature and habits of the honey bee. The Beekeepers' Guide Book, by E. Kretchmer, of Red Oak Junction, Iowa, contains much practical information, and so do many others. Improve the breed of bees, likewise by sending to some reliable man for Italian queens, but be careful of Professors. Attend to your bees as you would to anything else that you intend to derive benefit from, and you will have *luck*.

P. LATTNER.

LATTNER'S, DUBUQUE CO., IOWA,
April 12, 1869.

Where bees are, flowers must abound.

[For the American Bee Journal.]

Hunting Queens for Removal.

The usual method of finding queens in box hives is, to invert the hive, set an empty one on it, close the entrances, and drive the bees into the upper hive, by drumming on the lower one. The swarm is then looked over to find the queen.

In a different way, the operation may be very much facilitated, especially by the inexperienced "queen hunter." Leave the hive right side up; put on all the boxes; blow some smoke into the entrance, and close it. Now, drum on the hive, and drive what you can of the bees into the boxes. The queen will be almost certain to be among them. Then scatter the boxes, setting them three or four rods apart, and the same distance from the hive. In a few minutes the bees will desert the queenless boxes, while in the one containing her they will remain quiet, and there will be but few bees to look over to find her.

Even in movable comb hives, I prefer finding a black queen, by driving her into an empty box; instead of taking out the frames and looking over the combs. It is less trouble, especially if the swarm is a large one; and generally saves time.

J. H. Townley.

Tompkins, Mich.

[For the American Bee Journal.]

Wintering Bees in Paper Hives,

Mr. Editor:—As there is so much said about hives, we thought a few hints in regard to the subject, and that of wintering, might be of interest to that class of beekeepers who have been unsuccessful in wintering their bees in board hives in our cold climate.

In September last we transferred in Dr. Edwin Cox's Paper Hives several colonies, which we wintered with perfect success; while colonies in double wall board hives are in a sad condition. Those wintered in cellars are in a better state; but yet have not done as well by twenty-five per cent., as those in the paper hives have out of doors.

We weighed wood and paper hives last fall, and next month will give the amount of stores consumed. We wish friend McMullin, as well as other practical beekeepers, would give us a call. We will show them a better hive than the one described under the head of "Successful Bee-culture," in the March number of the Bee Journal, or we will pay all expenses which they incur in visiting us. Our hives are composed of eight walls, six of paper and two of thin boards, with an air space between each wall. They are tight and durable, and at the same time meet the wants of the bees in every respect. We do not use frames, but movable top-bars of a peculiar shape, which give us better combs than any other style in use. When combs are to be removed, we sever the edges by means of a thin sharp lance—a tool which every beekeeper should possess. Our honey box holds fifty pounds, and is so arranged that one box can be set above another, up to any number required. Our brood chamber is 13¼ inches square and 12 inches high, with nine combs.

A hive must be of such material and construction as to protect the bees from dampness and extremes of heat and cold, and offer them every advantage for storing surplus honey in acceptable shape for market, and give the apiarian full control in the general management of them.

The man who keeps bees from year to year, as the majority do in this region, without taking any surplus honey, is like a farmer who would keep a lot of fine milch cows and never milk them.

Chas. Hastings.

Dowagiac, Mich.

[For the American Bee Journal.]

Artificial Swarming, Queen-Raising, &c.

Mr. Editor:—As the season is approaching for raising queens and making artificial swarms, I will, with your permission, describe my most successful method of proceeding in either case.

After various experiments, I would say, in the beginning, that it is not for the knowing ones that I write this; but, as Mr. Gallup says, for those who know less than I do. If others, knowing doubtless methods as good or far better, should, on reading this, be induced to describe their modes of operating, I, for one, should be happy to hear from them, as my experience in beekeeping extends back only four years. By the way, Mr. Editor, I will relate what first led me to go into the bee-business. In the autumn of 1864, I was sojourning in the city of Dayton, Ohio. What caused me to dream of bees I know not, but certain it is I dreamed of bees more than thirty times during my stay of three months. This made such an impression on my mind that, on going home, I went to the bookstore and asked the proprietor if he had any books on bees, and was handed Mr. Langstroth's work on the hive and honey bee. To it, and our Bee Journal, I am indebted for nearly all I know about bees.

But to resume, from the 10th to the 15th of May, earlier or later, according to the season, I start my queen cells, by depriving some of my strongest colonies of their queens, taking out one or two frames with the queen and all the bees adhering. I put these into an empty hive, placing the frames at one side, and inserting a division board. I then set this hive one or two feet to the right or left of the parent stock, now queenless. Should too many of the bees leave and go back to the old hive, move this a foot or so to one side, and the other, containing the queen, as much nearer the old location. This will secure bees enough to care for the queen during her temporary absence. I have got as many as thirty-two perfect queen cells from a strong stock treated in this manner.

I much prefer this method of securing queen cells, to rearing them in small nucleus colonies, as recommended by many. On an average the queens are larger and brighter-colored, and I think more prolific than those reared in nuclei. I suppose my friends, Mr. Smith and ⁂, have found out ere this why I am opposed to closed top frames, in the practical management of an apiary, from personal experience.

On the ninth day I take out the frames, and for every queen cell that can be removed without destroying it, I form a nucleus. When procuring bees for these nuclei, it is best to do it in the fore part of the day, as then the great majority of the old bees are out at work, and the young bees remaining at home, having never flown out, will adhere to the nucleus wherever it is placed. On the tenth day cut out the cells, and insert one in one of the combs of each of your nucleus colonies; and in from four to six days each nucleus will contain a young queen. But before these queens are ready to fly, paint the entrances of your nucleus hives of different colors, or give them some obvious, distinguishing mark, or have them front different ways, so as to make them different from each other, and from neighboring hives, so that the young queens, returning from their excursions, shall make no mistake, but be sure each to enter its own proper hive.

Should any of the nuclei fail to rear a queen the first trial, give it another queen cell if you have any on hand; if not, break it up at once; or, by adding more bees and supplying them with worker eggs and larvæ, set them to raising queen cells—though I much prefer to have these raised in large colonies.

The old queen should be returned to the parent hive as soon as the queen cells are removed; and if the stock is reduced in numbers, exchange combs with some other strong colony, thus strengthening them up at once.

By the 12th or 14th of June, if the weather has meantime been favorable, the nuclei will nearly all contain fertile queens.

About the time the white clover comes into blossom, which in this part of the country is from the 12th to the 16th of June, I swarm or divide my bees. The process as I manage it is very simple; at least I think so. My hives are all made with ten frames each. I set an empty hive at the side of the one I wish to swarm or divide. After smoking the bees to quiet them, I remove few of the frames with the bees adhering to them, and place them in the empty hive. Ascertain which hive contains the old queen and mark it, so as to make no mistake in introducing a queen. Set each hive from one to two feet to the right and left of the spot where the old hive stood, and fill up each hive with empty frames, alternating one empty one between two full ones. Next day I introduce the young queen to the queenless hive, confining her in a cage from twenty-four to thirty hours, at the end of which time she is usually well received. Should one of the hives thus placed lose too many bees, move the most populous one further from the old stand, and move the other as much nearer to it.

To make these operations successful, all the colonies should be strong in numbers before division is attempted. The hives should be as near alike as possible in shape, appearance, and color, that the deception may be more complete.

My swarms made in this way last summer had filled their hives with combs, and were at work in the honey boxes before my neighbor's bees were prepared to swarm. While my bees gathered an abundance for winter, and a nice surplus besides, my neighbors got no surplus, and nearly one half of their last year's swarms starved in the past winter. My bees are Italians, procured of course from Mr. Langstroth's late importations. Those who contemplate Italianizing their apiaries this summer cannot do better than to send to Mr. L. His guarantee of purity can be depended upon.

HENRY S. SEE.

EVANSBURG, PA.

[For the American Bee Journal.]

Hatching Queens.

Mr. W. W. Cary, in the April number of the BEE JOURNAL, seems to think that Gallup is somewhat mistaken about queens hatching in seven or eight days. But I can assure him there was no possibility of a mistake. I had only four swarms and one nucleus that I had wintered over. Early in April I removed the queen from the nucleus, and all of the brood and eggs, and substituted a frame containing unsealed larvæ, &c., from my Italian swarm. The combs in all of my swarms or stocks were built the season previous, consequently all was new comb, and there was no queen cell of any description on the comb. I set the dates on the hive with a pencil. The comb was transferred at noon, and on the eighth day, about sunrise, the queen had hatched out and destroyed the remaining six cells. On the ninth day, at one o'clock, she came out and was fertilized; on the eleventh day, from the time the comb was given to the nucleus, the young queen had commenced laying; and in three months from the time she commenced laying she died of old age.

My neighbor, Mr. G. A. Wright, brought three boxes containing combs and bees here to raise queens; and I gave each nucleus a small piece of comb of about one inch by two, containing unsealed larvæ and eggs. On the eighth and ninth days after this, the first queen had hatched, and destroyed the surplus cells in each box. Mr. Wright came to separate the cells on the ninth day, and found he was one or two days too late. He was governed by the books, which say that ten days is early enough. Furthermore the books say that larvæ over three days old cannot be changed to a queen But what does the BEE JOURNAL say? See vol. 2, page 38, in a foot note, and you will find these words: "It is now ascertained that larvæ five and even six days old may be successfully employed for this purpose, and occasionally are so used by the workers." Now, allow three days in the egg and six days in the larvæ makes nine days, and seven days more in the pupæ state makes the full sixteen days. Forced queens with me have very often come out in eight or nine days; but the instances above given are sufficient to show that there are such cases.

A queen dying by accident and a queen dying from old age are two different things altogether. The three queens I obtained from Mr. Cary were put in hives by themselves, and one of them was set on the back side of the house. That one I never showed to visitors, and did not open the hive at all till I discovered that there was something wrong, and then only occasionally. The other two I used to show visitors, and they are alive yet. The one that died commenced failing in the same manner that an old queen does, and for two weeks towards the last part of her eggs produced drones in worker cells. Now, if a queen fails in that way, I call it *old age*, whether at the age of three months or three years. When I lose a queen by accident I am very apt to know it.

E. GALLUP.

OSAGE, IOWA.

[For the American Bee Journal.]

Removing Bees.

QUERIST, on page 186, April number of the BEE JOURNAL, inquires what course I would pursue in certain cases, to cause bees to remain where placed.

When bees are drummed out of a hive with their queen, and allowed to cluster in a box, either with their own queen or a strange queen in a cage, for forty or fifty minutes, and then deprived of the queen and allowed to discover their loss, they can be put anywhere, either with a strange queen or a queen cell, or with eggs and larvæ from which to rear a queen—*provided* this be done at about swarming time, when the bees are gathering honey abundantly and hatching brood.

A novice in the business may fail a great many times. But "don't give up the ship." I can and do succeed every time; but I used to make a great many failures when I began. I learned the process from Mr. Wellhuysen.

Mr. F. H. Miner has knocked us upward ventilation men all flat on our backs. But, Mr. Editor, just tell him from me that Gallup will be after him in due time, with a nut for him to crack. That knock-down argument is not conclusive in my opinion.

E. GALLUP.

OSAGE, IOWA.

All the divisions of natural science have a mutual and convertible bearing, and closely interlink in their relations. Thus insects denote botany, which further indicates the climate or elevation and soil; and the superficial soil will point geological conclusions to subsoil and substructure.

One great natural science well mastered gives the key to the great storehouse of nature's riches, and yields a harvest of many different crops.

[For the American Bee Journal.]

Experience of a Beginner

MR. EDITOR :—Permit me, in the beginning of this my first epistle, to express my high appreciation of the AMERICAN BEE JOURNAL. In proof of which I may say that my first duty upon receiving a copy of it is to read it through from beginning to end. In it I find many assertions fully confirmed by my experience; many others which I take as valuable suggestions; and, lastly, some which appear to me to be opposed to both reason and experience. I will relate to you in few words, my experience and practice in beekeeping; and from it you will be able to gather the main points of agreement or difference between my opinions and those of your other correspondents.

In the year 1864 I imported the first hive of bees that had ever been in Cape Breton, and as the person from whom I ordered it represented it to be in a Langstroth hive, I obtained beforehand and studied that gentleman's invaluable work on the "Hive and Honey Bee." I also made a hive in accordance with Langstroth's directions No. 2, with observing glass and box cover. When my imported hive arrived I looked in vain for any resemblance between it and the one that I had made. It was a little broader, a little deeper, and a little shorter; and as to workmanship, could have been made in as many hours as I took days. Then, eight of the frames had slipped together at one end when the bees were put in, and the honey-board had evidently never been off since. It was a hard looking case; but, nevertheless, I took from it the next season a strong swarm and about seventy pounds of honey.

Encouraged by my success, I sent away in the fall of 1865, and imported seventy-five more hives, expecting of course to make as much from each one as I had from the first. They were recommended to me as being good stocks, some in box and some in Langstroth hives; and, on the strength of that recommendation, I took them without personal inspection. Soon after their arrival I found that the sellers had acted upon the saying—"I was a stranger (to the business) and they took me in!" In some of the hives the bees, combs, and honey weighed less than ten pounds. In the spring these of course were "non est;" but still I had about forty-seven hives left, and fondly imagined that my troubles were pretty well over—little dreaming that they had only just commenced. More than half the hives were frame hives, but *movable* frames they were not, nor ever were intended to be. Many of them had the frames firmly nailed in, and in others the combs were built directly across. More than this: the frames of no one hive would fit any other, even if they could have been got out. The maker of both them and the box hives must have thought that *variety* is the chief charm of life. I decided immediately that that style of business would never suit me. My comb frames must be *movable* and *uniform*. With that object I made forty-seven new hives; and I think even Mr. Langstroth, if he could see them, would admit that he never saw Langstroth hives better made. These I filled with new swarms—most of them natural swarms. And now it began to dawn on me that my bees were badly diseased with foulbrood; and, what was worse, I had taken no precautions against the spread of the disease, but had allowed them all access to the diseased honey, never suspecting the mischief that was being done. I sold sixteen and had seventy-seven on hand in the fall; but they were so short of honey that I was forced to reduce their number to forty-five. Next spring, 1867, I transferred to my new hives all that still remained in the old ones, and broke up the old hives for firewood. That season I lost so many from foulbrood that in the fall I had only thirty-four on hand, including new swarms. Last spring (1868) I abandoned natural swarming. I lost four by foulbrood, but made eleven artificial swarms, and have now forty-one on hand.

If you think this worth publishing, you will hear again from

THOMAS C. HILL.

CAPE BRETON, N. S.

[From the London "Journal of Horticulture."]

The Baroness Von Berlepsch,

August Baron von Berlepsch, one of the most distinguished among the scientific beekeepers of Germany, married somewhat more than three years ago, Lina geb von Welebil. This lady appears quite as enthusiastic as her husband with regard to bees, and is, moreover, exceedingly clever, being, I believe, mistress of several modern languages. Having recently corresponded with her, I can speak positively with regard to English, which she writes and speaks with remarkable fluency and precision. It may be remembered that the Baron was prevented attending the great meeting of German bee-masters held at Darmstadt in September last, owing to his having been prostrated by a stroke of paralysis. The following article from the pen of the Baroness has recently appeared, and gives so interesting a glimpse of her married life under these adverse circumstances, that I am induced to submit a translation of part of it to the readers of "our Journal."

T. W. WOODBURY,
"A Devonshire Beekeeper."

MOUNT RADFORD, EXETER, ENGLAND.

BEHIND THE SCENES.

The delightful days of Darmstadt are over, and, although it was not permitted us to be present, they are still endeared to us by many agreeable reminiscences. Behind the scenes, as it were, we might yet take part in the proceedings, and delight in the considerate attention which was so kindly shown us.

Our first visitor was the Marquis Balsamo Crivelli, who went direct from Coburg to Darmstadt. In him we made the acquaintance of an enthusiastic bee-friend, and an amiable and honorable man. I count his brief visit as one of the flowers among the garland of joys which arose to us out of the meeting at Darmstadt.

As the sun of the 8th of September rose beaming in the heavens my heart indeed felt heavy, and it drew me powerfully towards the South. Hour by hour we followed in imagination the movements and proceedings of the assembly, and hailed with joyful emotion the arrival of the telegram which conveyed to us its greeting and kindly sympathy. It may be permitted to me to return to all and every one our heartfelt thanks for the honorable distinction which was thus conferred upon us.

Time passed on, and the meeting at Darmstadt over, Counsellor Kalb and his wife were the first who came to us, and, well pleased and happy, related all the pleasures which they had experienced. These were old friends, and we chatted and chatted until my dear husband became quite happy, when we prepared for an excursion to the Callenberg, so that he might rest after all the friendly excitement. How these bright hours shine in the camera obscura of the memory! Merry gossip, alternated with more serious conversation, soon brought us to the charming castle and favorite residence of our Duchess, where a stroll through the rooms was succeeded by a glance at the private apartment of the great lady, which I can never recall but with deep emotion. There, on a table placed in front of the oriel window which commands such a magnificent view, lay a simple wreath of immortelles, which touched a chord within me, whilst unutterable sensations rushed keenly through my heart, like the wailings of an Æolian harp.

Descending from the castle we visited Curzins, the game-keeper and bee-master, who kindly exhibited his little menagerie, but pleased me best by calling together the deer, which ran at large in the park, in order to feed them with apples. By this time evening had set in—a fragrant and misty autumnal evening. On one side lay the Castle of Callenberg, veiled in the twilight, and on the other the citadel gleamed bright in the golden rays of the setting sun, whilst before us spread the wide park, traversed by the noble deer which followed the melancholy "Come! come!" and fearlessly approached to receive the proffered dainty.

Gunther also came to Coburg. He is to me a dear familiar personage, whose single hearted attachment to my husband has about it something almost touching. With him appeared my husband's "dear friend" Vogel,* who visited us both on his way to Darmstadt and back, but whose visits were so flying that I scarcely got to know him. He is too staid and grave to make himself quickly at home, and I regrettingly saw him depart without having succeeded in picturing him exactly to myself. The community of feeling which subsists between him and my husband is, however, well known.

The same day which carried off Vogel brought Hopf, who was all fire and flame, not only on account of Kohler's process, but because of the Rhine voyage, which had also contributed to his excitement, although in quite a different manner. Verily this Rhine voyage must be charming, very, very charming.

Eight days after the departure of Hopf, we were enabled to greet Hruschka,† with which dear friend we had corresponded during a year before we learned to know him personally.

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*Introducer of the Egyptian bee.

†Inventor of the centrifugal honey extracting machine.

Notwithstanding some difference of opinion, he has become heartily dear to us, and we often think of him with pleasure. With him our succession of company came to an end, for alas! alas! the visit of our dear editor, Schmid,* which was intended as a surprise to us, was frustrated by the death of his little daughter. Whilst yet attending the bee-masters' meeting, a telegram called him back only to find his child extended upon her bier. One daughter a bride, the other with wreaths lying upon her coffin—which may be the happier?

Having thus mentioned our visitors, and reported what occurred behind the scenes, I have still something on my mind. It seems to have been stated and believed at Darmstadt that my articles may be the productions of my husband. Now the idea is so ridiculous, that if it were not insulting, it might be extremely amusing. Poor lords of creation! Have you never found a woman, who without stepping out of her sphere, took an interest in something more than eggs, butter, and servants? Do you not know how to distinguish differences of thought and style? Can you not understand that my manner of writing is as impossible to my husband as his learned treatises bristling with quotations would be to me? Those who are not sensitive might not feel this, but at any rate a less hasty judgment is to be commended. I thank God that my dear husband's health is improving, and I trust the time will soon come, when by his sledge-hammer blows he will demonstrate *ad oculos*, that he has no especial *penchant* for my style of writing.

Whilst penning the foregoing our little dog was brought in. He had been run over by a stage coach. Four hours later he was dead. Many bee-friends will remember our pretty Sepp, which my husband had so long ago, as when he was in Gotha. He was only a dog, but his loss has caused us bitter pain. He who knows mankind learns to value dogs for their fidelity and unswerving affection. Let these words be Sepp's monument.—LINA, BARONESS VON BERLEPSCH, *Coburg*.

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*Andreas Schmid, editor of the German Bee Journal.

[For the American Bee Journal.]

Gallup and the Langstroth Hive.

MR. EDITOR:—I see in the March number of the BEE JOURNAL, page 170, that my friend Gallup is out again in his usual braggadocio style. He starts off by telling us what he did "when a great, green boy," and then says "that disposition" has never left him. What disposition does he mean? I suppose the disposition to be cruel and "green." Well, let that be as it may, what has it to do with his former statement that the Langstroth hive was "rejected all over the west"—though he now states that he said so merely to see what effect it would have, and to "draw out Mr. Alley again." Well, if he had stopped there, it might have done well enough, for no one who has travelled through the west, and paid any attention at all to the subject, believed what he said about the Langstroth hive being "rejected all over the west." He says my fault-finding would have been just if he had written only one article for the BEE JOURNAL. Pray, Mr. Gallup, point us to the article you ever wrote that goes to prove that the statement is true that the Langstroth hive is "rejected all over the west." Your experience in beekeeping, Mr. Gallup, has nothing at all to do with that statement. Again, you say that you could take my side of the question and "beat me all hollow." Beat me at what, Mr. Gallup? I am not on the other side to be "beat." Suppose you attend to your side of the question first, before you offer your services on my side. Make your statement good, and then we will pass on and consider other parts. Why, Mr. Gallup, am I "barking up the wrong tree?" I aimed to "bark" up the tree at the "Osage" gentleman. Is that the wrong tree? It may be very small game, but nevertheless visible to the naked eye.

Now, Mr. Gallup, what does all you have said amount to? In answer to my objection to your former article concerning the Langstroth hive, (or shallow things, as you call them,) you say that they are "rejected all over the west." I say they are not. Can you prove your statement true? Again, you said that you knew a man to lose six hundred dollars worth of bees in one winter in the Langstroth hive; but failed to show that it was the fault of the hive. Is that a fair way to treat the subject? I knew a man to lose one hundred and twenty-five stands in one winter, and he never saw a Langstroth hive. Bees that "do not know any better," will die sometimes in almost any kind of hive. Suppose you are the "new beginner's friend," what has that to do with the subject under consideration? I suppose, judging from your own words, that you are the "new beginner's friend" merely to see "what effect it will have."

I thank you, Mr. Gallup, for your kind banter to "discuss the merits and demerits of the different forms of hives." I do not see what there is for us to "discuss" about, as we do not differ about the form of the hive. You say the form of hive that Mr. Langstroth uses is well adapted to the climate in which he lives; but that in your latitude you must have "two inches more in depth of comb." I say I do not know about that, as I never cultivated bees immediately in your climate. I own bees in northern Illinois, and they do well in the same form of hive as in eastern Indiana. So you see, Mr. Gallup, that there is barely two inches of ground between us, and that is hardly enough to make a fuss about. At all events, it would not be room enough for two *great men* like Mr. Gallup and myself to fight on. We should be very apt to get off the track and say something "to see what effect it would have." But, Mr. Gallup, since you have thrown out the banter, suppose you lead off and let me see what kind of hive you do prefer. If you do not "hit it too hard," I may venture to say something on the subject. Leave the old tom cat, and the desire to see what effect such cruel treatment will have, out of the ring this time, and deal in facts.

B. PUCKETT.

WINCHESTER, IND., March 22, 1869.

[For the American Bee Journal.]

Queens Mating Twice.

Mr. Editor :—My unfortunate articles on this subject have called down so much criticism, both public and private, that I have been deterred from adverting to it again till this late day, for fear that I might be in error in regard to the position which I then assumed. But after having carefully considered the subject in all its bearings, and collated all the evidence in my power, on both sides of the question, I am more firmly than ever convinced that I was then right; and that queens do not mate but once—using the term *mate* in the sense of copulation resulting in impregnation.

Were this otherwise, what guarantee has any one of raising pure Italians in a section of country where the native bee exists, even though he use imported queens exclusively? For if queens will mate more than once, may not the imported lady so demean herself, as on some sunny day to leave her hive on an amatory excursion, in a locality where black drones only are to be met? This conclusion must legitimately follow, for if she will leave the hive once (or even more times, as some affirm) after impregnation has taken place, who of us can place a limit to her excursions, or define the time when she will not so do? Nor is the liability in the least degree lessened, even if imported queens are relied on; for, of course, the same rule applies to them as to their daughters.

When the question first came up, I foresaw what the result would be; and that perhaps many parties would be deterred from buying American bred queens, fearing that their purity might be impaired by successive marital flights. Of course such at first thought they would " go in" for imported queens, believing that these were not liable to the same rule ; and this idea has been distinctly inculcated by parties directly interested in the selling of imported stocks, as probably all the readers of the "Journal," have long ago seen. I do not intend to impugn any one's motives, but the "Journal" is the medium of free expression of thought, and truth must prevail, no matter how much agitated or denied.

If any one looks at this matter in a physiological point of view, he will see at once the improbability, not to say impossibility of twice mating being true. The Allwise Creator has designed that among bees impregnation should take place high in the air, (this I believe is a conceded fact,) in order probably to guard as much as possible from in-and-in-breeding. Now, as the large size of the queen, and the smallness of her wings, make this a matter of great danger to her; and as the whole life of the hive depends upon her safety; is it all likely that the laws by which she is governed would allow her repeatedly to attempt a journey of so much danger, merely to gratify an amatory desire ? No ! I cannot allow any one to disparage the Almighty's evident laws, and to make a wanton of my favorites, without taking up the cudgel in their defence.

The introduction of the Italian bee has to my mind proved the fallacy of the idea which has called out this article; for if an introduced pure queen should mate the second time with the native drone, would we not at once know it? And, after careful inquiry, I have not been able to find a single case where an impregnated queen has ever voluntarily left her hive, except when she went forth legitimately with a swarm. When any one will *prove conclusively* that this has ever been the case, then I will admit an error on my part; but till then you will find me adopting the text quoted by Mr. J. Davis—"Prove all things ; hold fast to that which is good." Excuse me, however, if I want them *proved.*

As this subject is to my mind one of importance, I hope it will be fully ventilated. But give us *facts* not *theories*, or else you must not expect me to endorse your views.

J. E. Pond, Jr.

Foxboro, (Mass.) May, 1869.

[For the American Bee Journal.]

Sending Queens by Mail.

Mr. Editor :—As I noticed, in the Bee Journal for January, an illustration of a queen cage, for sending Italian queen bees by mail, I will send you a cage in a few days which you may, if you see fit, illustrate in the Journal. I have been using and perfecting this cage for the past two seasons. It is $4\frac{1}{2}$ inches long and $1\frac{1}{4}$ inches in diameter. Two pieces of wood are used for the ends, which contain the sponges saturated with honey. Turn the wood (soft pine) in a lathe $1\frac{1}{8}$ inches in diameter, and any length convenient; saw it into pieces $1\frac{1}{4}$ inches long, boring in each end before sawing off a hole $\frac{7}{8}$ inch in diameter and $\frac{3}{4}$ inch deep for the sponges, which are held in place by a common brass pin near each end.

Iron wire netting, containing about fifteen meshes to the inch, is cut $3\frac{1}{2}$ inches by $4\frac{1}{4}$ inches, to cover the whole, and is fastened with three tacks at each end. One end is to be fastened first; then the queen and twelve or fifteen workers are placed therein, closed up, and a a half sheet of note paper is wrapped around and fastened with common thread for the P. O. address. Cut two or three slits in the paper to give the bees air, put on a two cent. stamp*, and they go safe as seed bees ninety-nine times out of a hundred the distance I send them, which is from one hundred to five hundred miles. When away introducing queens, I have carried them in these cages in my coat pocket for a week at a time, perfectly safe.

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*It will be seen, by the following letter from the First Assistant Postmaster General, that a THREE CENT, postage stamp must be affixed to these queen cages, when not weighing more than half an ounce, in order to prepay the postage :

Post Office Department, Appointment Office,
Washington, December 28, 1868.

Sir :—In reply to your letter of the 23d instant, I have to say that under no circumstances can bees put up in cages or boxes be permitted to go in the mail at less than letter rates of postage, viz : three cents for each half ounce or fraction thereof.

I am, very respectfully, &c.,
John B. S. Skinner,
First Assistant Postmaster General.

I will now give an illustration of the best device I ever found for holding newly transferred combs in place. Take 1-10 inch iron wire (stiff wire is best); bend it just wide enough to fit over the top bar of the frames in the Langstroth hive, having two prongs from six to eight inches long. By springing these to fit different thicknesses of comb, they will hold it firmly in place. As soon as the bees fasten the combs the wires can be withdrawn without disturbing them. Two wires in a frame is generally sufficient. No practical beekeeper will use anything else after once trying these.

I like the Italian bees very much for this section. The year 1867 yielded honey bountifully, but 1868 was below the average, and bad for queen raising. Like some other beekeepers, I believe in improving imported stock, and am constantly aiming at that one point.

W. O. SWEET.

WEST MANSFIELD, MASS.

[For the American Bee Journal.]

Puff Ball Smoke and Fertile Workers.

On page 40 of the September number of the BEE JOURNAL I see (what is claimed to be by the writer) an infallible cure for drone-breeding colonies. He states that he made known the process at the Convention of German beekeepers at Hanover in 1868; but that it does not seem to have attracted the attention it merits. He states that it is only necessary to stupify the colony with puff ball smoke, and at once introduce a fertile queen among the bees, before they revive; this done, the cure is effected.

Now I understand that in some of these drone-breeding colonies a queen is present which never mated with a drone, and that in all cases the queen may be selected from among the bees, and destroyed. Then we have a queenless colony to which we may introduce a fertile queen, after some of the usual modes, thereby effecting a cure without the use of puff-ball smoke, or any other stupifying agent. I further understand that we sometimes have a colony in which a fertile worker is present, and that in such a case we cannot select the fertile worker from among the other bees, as there are no distinguishing marks of difference as regards either shape or size. Such at least was the case with one in my own apiary. I made repeated search for the miscreant, but without success. I then introduced three fertile queens at different times; each was well received by the bees; but within twenty-four hours after their introduction, I found a dead queen in each instance, on the platform in front of the hive. But what I wish to ascertain is, how puff-ball smoke is to effect a cure in this kind of case. Are these fertile workers decidedly more tender than any other workers, and consequently more easy to smother to death from smoke? Or is the cause only accidental? That is, where the process of smoking is carried to the extent of killing a portion of the bees, does it not happen occasionally that the fertile worker is among the slain? Or, does the smoke destroy the egg-laying power of the fertile worker, and change her natural disposition of hatred towards a fertile queen into feelings of love or indifference? Let me understand upon what principle this agent operates, if it really has any such effects. If the cure is infallible it will of course cure the first described case, in which we have an unimpregnated queen which we can hunt out from among other bees, since we have certain marks of distinction in such a case. But if the cure is effected by means of suffocating the drone-breeding queen, then this kind of smoke is very dangerous to use, in cases where we have a fertile queen; as it will be very likely to suffocate her among the first bees that perish. But if it operates by means of changing the disposition of hatred (which the queens have for each other) into feelings of love or indifference, it may be quite a valuable smoke, as then we could subject our queens to a course of it, and keep as many in one hive as may be desirable. But should it effect their egg-laying qualities, as well as their disposition, then it would be a destructive agent, to be used with caution among fertile queens. Now this agent must operate in some of these different ways, or it has no such power as is claimed for it. Please let those state how or in what way it operates, who have tried it and know its *modus operandi.*

GODFREY BOHRER.

ALEXANDRIA, IND, Nov. 23, 1868.

[For the American Bee Journal.

Antidote for Bee Stings.

MR. EDITOR:—My bees seem to assert and maintain "belligerent rights," both offensive and defensive, whenever they judge their honor insulted; and I have been seriously assaulted by them on several occasions. Their sting is very poisonous to me, and to many other persons, causing frequently appalling inflammation. I suffered much from this cause last season, and tried various prescribed remedies, such as spirits of hartshorn, soft soap, salt and vinegar, saleratus-water, &c., without much benefit, and I had almost decided to dispose of my bees this spring, unless I could get along without so much suffering from stings.

I have now, however, found an effectual antidote. A few days ago I was stung on the right wrist. I removed the sting with the point of my penknife, and applied *a little kerosene oil.* The pain immediately subsided, and no inflammation appeared. Yesterday I was stung again, on the other wrist, and applied the same remedy, with the same happy results.

I think I may rejoicingly say that the discovery is made, that *kerosene oil* is an effectual *antidote for the poison of the bee-sting.* Let others try it, and report.

P. R. RUSSELL.

BOLTON, MASS., April 2, 1869.

[For the American Bee Journal.]

About Patent Rights and Claims.

Mr. Editor:—I see that the Bee Journal is open for free discussion, and that those who are interested in bee-culture make many inquiries and are answered through its valuable columns. That is what makes the Journal so interesting; for we get the ideas of different bee-keepers in all parts of the United States. Now will some of the readers of the Journal give us information in regard to patent bee hives? The hive I prefer using, in common with nearly all the bee-keepers in this section, is Peter J. Severson's Double Surplus Frame Hive, which he claims he obtained Letters Patent dated February 25, 1868. I will give a brief description of this hive. It is 12 by 12 inches inside and 16 inches high. The frames are 10½ by 14 inches. The top arrangement consists of a box the same size as the hive, and 6 inches deep, with neither top nor bottom. This box contains five frames 5½ inches deep, 1¾ inches wide, with perforated partitions between each frame. The honey-board is then removed, and the surplus box placed on the top of the hive; the frames being ⅜ of an inch above those in the hive. Thus, you see, we have the same degree of heat in the surplus apartment as we have in the hive; which we all know is very essential for bees to build comb.

On page 151, February number of the Bee Journal, I find that Mr. Langstroth claims to be the inventor of all movable frames for bee hives. He also says that there are at least forty different patents of bee hives, and nearly all of them using frames which are an infringement on his rights. Now, I have no reason to dispute Mr. Langstroth's word; but will he please to inform us why he has allowed different parties to construct bee hives and get them patented, all using the frames which he claims are his property?

Now the question is, first, does the Patent Office grant patents to different parties upon one invention, without the consent or license of the inventor?

Second. Of whom shall we buy the right? Langstroth claims to be the inventor of all movable frames. Severson claims that he invented his hive, and that his patent is as good as any that has ever been granted by the Patent Office.

Let us hear from Mr. Langstroth, Mr. Gallup, Mr. Quinby, or anyone else; for my mode of doing business is, first to know that I am right, then go ahead.

Bees have done well the past season, and were put in winter quarters with their hives nearly full of honey. They have wintered well, as far as heard from; excepting in one apiary, and that belongs to one of our neighbors. He partitioned off a part of his wagon house, and lined it with straw, with no ventilation, above or below. He put his hives in this coop, in as good condition as any I ever saw; and the result was that this spring, out of fifty-three colonies, he had twenty-two left. All that died had the dysentery. Was this caused by not having proper ventilation?

B. C. Auchampaugh.

West Township, N. Y.

[For the American Bee Journal.]

To Introduce Italian Queen Bees.

Although I am an old queen bee breeder and queen bee introducer, I lost a queen once in a while—though following the instructions of Mr. Langstroth. Last season, when I had so many to introduce, I concluded to try Mr. Thomas' way, to tie an old cotton rag over the opening of the cage, and leave it to the bees to perforate it and liberate the queen. Of about one hundred, every queen so introduced, late in the season, when bees are not usually very willing to receive a stranger queen, was liberated and received by the bees without difficulty. I therefore feel myself under great obligations to Mr. Thomas, and would recommend to every beekeeper this mode of introducing queens.

Disposition of Black Bees to become Drone Breeders, in Nucleus Hives.

When I first commenced raising Italian queens, I was compelled to use black bees. At that time I did not know the difference between them and Italian bees, as far as workers becoming drone-layers is concerned. In almost every nucleus some workers commenced laying before the young queen hatched, at which time they would stop laying; but when I took away the queen after she became fertile, these drone layers would begin their work again. Then, in most cases, the workers would not build new queen cells, and if any such cells were furnished from other stocks, they would be sure to be destroyed, unless very nearly ready to hatch.

Two years ago I had a fair chance to ascertain that black bees or poor hybrids are a great deal more apt to turn drone-layers than Italian bees. A neighbor of mine asked me to raise some queens. I promised to do so, provided he would furnish the nucleus hives with bees, from his apiary. He brought a lot of black bees, which we put into two nucleus hives, and I succeeded in raising a queen in each of them, although some drone-laying workers had already made their appearance. But neither of these nucleus hives built a queen cell from the brood left by the fertile queens when taken away. A number of queen cells inserted were successively destroyed, and the bees went on breeding drones uninteruptedly for nearly six weeks, when I concluded to kill the few remaining. At the same time I had more than sixty nuclei, stocked with Italian bees, of which, though treated exactly like the others, not one became drone-breeding.

A. Grimm.

Jefferson, Wis.

THE AMERICAN BEE JOURNAL.

WASHINGTON, JUNE, 1869.

☞ THE AMERICAN BEE JOURNAL is now published monthly, in the City of Washington, (D. C.,) at $2 per annum in advance. All communications should be addressed to the Editor, at that place.

☞ The present is the concluding number of the fourth volume of the BEE JOURNAL. We find, on examination, that a portion of our subscribers are in arrears for this and the preceding volume. As we have to pay cash for material and work, our terms are necessarily payment *in advance;* and we are continually receiving assurances from intelligent practical bee-keepers in all parts of the country, that the JOURNAL is well worth its price. The support which it has thus far received, including *promises*, will not, however, do more than cover cost, as the expenses of publication here are very heavy. Will not our friends join us in the effort to increase our subscription list to a remunerating point; and those who have hitherto failed to contribute the "material aid" due from them *and much needed*, supply the omission promptly, that we may commence the ensuing volume with the conviction that the work will be permanently sustained?

☞ Our next issue will contain a translation of the communication on foulbrood, received from Mr. Lambrecht, of Bornum, in Prussia; which may be regarded as introductory to a further discussion, and, we trust, final disposal of that subject by him. His investigation of the nature, source, cause and cure of this destructive and hitherto unmanageable malady, has been steadily prosecuted and carried on with such satisfactory results, that he has engaged to submit his present process, (which differs somewhat from that formerly employed) to a test experiment under the supervision of a committee appointed by the Brunswick-Salzgitter Beekeepers' Union. His proposition is, to render foulbroody a healthy colony of bees selected by the committee; and after the existence of the disease in its worst form, in such colony, has been demonstrated, to effect a perfect cure in the course of two days at most. He will not make known his process until after the committee report the issue of this trial.

☞ The late Convention of German Beekeepers at Darmstadt, resolved to hold a jubilee at their next meeting in Nuremberg, in September next, in honor of Mr. Andrew Schmid, Seminary-prefect at Eichstädt, in Bavaria, and Editor of the *Bienenzeitung*, which paper has just entered on its twenty-fifth year under the editorial management of Mr. Schmid. It is proposed to use the occasion to provide and present to Mr. S. a "free will gift" of money and other valuables, by contributions from German beekeepers; who are also solicited to accompany their offerings with their photographs and autographs respectively, for an album dedicated to the honored object of this demonstration. A committee has been named in furtherance of these measures, and consists of the Baroness von Berlepsch, Messrs. Dathe, Dzierson, Gravenhorst, Hofman, Hopf, Von Hruschka, Rev. Mr. Kleine, Prof. Leuckhardt, and Dr. Ziwansky. Mr. Hugh A. Hopf, banker, of Gotha, has been appointed treasurer of the fund. American beekeepers will be invited to participate in the movement designed to secure to Mr. Schmid a gratifying testimonial of the appreciation of his services entertained by those engaged in bee-culture. For a quarter of a century Mr. S. labored with untiring industry and unflagging zeal to advance practical and scientific bee-culture; and his efforts have been eminently successful. It is known, however, that during a large part of the time his paper was sustained mainly by the editor's pecuniary sacrifices and gratuitous services; and it is believed that the former were never reimbursed, nor the latter adequately compensated, from the profits of the publication. It is therefore fitting that those who have been so largely benefitted by his labors should join to do him honor, by giving him tangible evidence of their just estimate of the ability and success with which he discharged his functions as editor.

A swarm consists not of all young bees, as many falsely imagine; but of a queen, of drones, and of working bees, both old and young—such as happen to be at the doorway when a swarm rises, and catch the emigration impulse.

Michigan Beekeepers' Convention.

The following additional items of the proceedings of this Convention were received from the Secretary, Mr. A. J. Cook, of the Agricultural College at Lansing, after the first six pages of our present number were stereotyped, and it was consequently impracticable to insert them in regular course. They form the concluding portion of the proceedings :

The President said that all wide-awake beekeepers would have none but movable frames.

Dr. Conklin. My hive has about two thousand cubic inches. The frame is square, and a corner is at the top.

Mr. Balch preferred low hives, so that he might get much surface for surplus honey boxes. He thought frames should not be more than 9½ inches deep.

Mr. Moon wished for deep hives, as they were warmer. Bees were more sure to winter well in them, especially on out-door stands.

The President thought Mr. Langstroth deserves great credit for bringing movable frames into use. These frames could be made deeper. He would have them 12 inches in depth.

Mr. Otis said Mr. Langstroth does not patent any shape of frame. Frames could be made of any shape. He said 8½ inches in depth was all sufficient. If wintered in-doors, 7 inches was deep enough for the frames.

There were three kinds of hives exhibited. One by Mr. Haywood, of earthenware in lieu of wood, He thinks it is cooler in summer, and warmer in winter.

It was moved and carried that the Secretary send a copy of the proceedings to the AMERICAN BEE JOURNAL for publication.

[For the American Bee Journal.]

Loss of Bees.

MR. EDITOR :—That bee disease which I read about in your paper, exists here to an alarming extent. If I had not given my bees plenty of sugar syrup, every colony would have been dead long ago. I wintered one hundred and thirty-two colonies in a cellar, and only five died with that disease, and that was from want of food.

Nine-tenths of all the bees in the northern part of this State are dead. Italian bees have no more honey than the black. One of my neighbors lost one hundred colonies out of two hundred Italians, with that bee disease. I am inclined to think bees have not had proper attention. It is well known that there was a scarcity of honey last year, and I suspect that was the cause of the bee disease.

I use the Langstroth hive, and can feed all my bees in one hour. Fruit trees are now in full bloom here, but there is no honey in the blossoms. Most people say if bees cannot now live, they may die.

S. W.

BATAVIA, ILLS.

[For the American Bee Journal.

Birds and Bees in Louisiana.

We have a bird here, in Louisiana, that is a bee-eater, and has destroyed its hundreds of bees. It is said to be a variety of ortolan. The female is about the size of the bee-martin ; plumage dirty yellow. The male is about the same size, and its color red.

The operation is thus : Early in the morning they will be found flying around the hives, and if no bees are on the wing, they alight before the hive and tap at the entrance, giving a succession of blows with the bill. Of course bees soon appear to reconnoitre, one of which is snatched up and carried to a limb of a tree, where it is rolled about between the ends of the beak of the bird, with a snapping sound, such as a "cardinal" makes when eating corn, and then swallowed. One bird swallowed thirty (30) bees in less than ten (10) minutes. They are very expert at catching bees *on the wing.* So troublesome were some of these birds, that I made a sort of barricade with laths around my hives, to prevent them from getting near the entrance.

Orange flowers were very abundant, and gave a good supply of honey. White clover is now abundant. Swarms came out on the 6th of March, and from that date until April 10th. The season is now probably over. The swarms were very large ; and having been so much annoyed by the birds, were unusually cross.

More swarms were noticed this year than ever before.

We have no Italians here. My friend Dr. A. W. Smyth, Surgeon of Charity Hospital, New Orleans, has several colonies, and is much pleased with them ; though one of the colonies is far more difficult to handle than the ordinary bees—a hybrid, probably, though well marked. Will give you an occasional note from here, if of any interest.

GEORGE HOWE, M. D.

POINT A LA HACHE, LA.

[For the American Bee Journal.]

Getting Bees out of Honey Boxes.

In the BEE JOURNAL, volume 4, page 219, Mr. J. T. Rice gives his method of getting bees out of honey boxes, and says if any one has a cheaper, quicker, or easier way, that is not patented, he would like to know it. I will give him my way, which is more *sure.* I have tried his method often, and failed to get all the bees out.

I take off the boxes late in the evening, and set them in any dark room, on a shelf or long bench, in such a manner that the bees can get out of the boxes and crawl from one to another. I then cage a queen and place her in an empty box about the centre of the row or pile of honey boxes, and every bee will collect around her. Next morning the queen may be taken back to her hive, and the bees set at liberty near the apiary, when all will return to their respective homes. Or they may be put in a hive or nucleus with the queen, and form an independent colony.

This method is *not patented.* Try it, Mr. Rice, and report your success.

I made the discovery by accident, in 1862. While taking off a large lot of boxes, a queen happened to be in one; the next morning all the bees had collected around her. Since then, I have tried it often, and have never failed to get *all* the bees out.

H. Nesbit.

Cynthiana, Ky., May, 1869.

[For the American Bee Journal.]

Barren Queens.

The Cause of that Disease.

Mr. Editor:—In the last Journal I find some remarks on the above subject, by friend Thomas, of Brooklin, Canada. I think the correctness of his remarks depends much upon how he defines the word *barren*, when applied to the condition of the queen. If he means that she has ceased to lay worker eggs, but still continues to lay drone eggs, then I think the *barrenness* which he regards as a contingency "too common to be productive of such fatal results," will, every time it occurs, prove fatal to the stock in which there is just such a queen, unless promptly supplied with a fertile one. If he means that the queen has, for a longer or shorter period, ceased to lay eggs of any kind, then, if this period of time is too long protracted, it would again prove fatal to the colony, as it did in 1868, no matter how *common* the *contingency*, for a short period of time. If then the failure of honey in the flowers will be the cause of barreness in the queen, as long as it continues; our remedy is to feed the bees and stimulate the queen to fertility. This failure of fertility with the queen is no longer problematical with me, as to its "fatal results." It is now fully developed in those stocks that died—a pint or a quart of dead bees being all that is left of a once fertile queen.

The scarcity of honey began, in 1868, about the middle of July, and continued until in September—long enough to make most of the queens barren for six months. Well might we look for the death of thousands of swarms, which have passed out of existence from such common contingencies. That "scarcity of honey" will instinctively cause the bees to cease to stimulate the queen to fertility, is now placed beyond a doubt. This, then, is a legitimate reason for the loss of so many bees all over a wide extended tract of country, without taking into account anything that has been said about poisonous honey, want of pollen, constipation, or cholera, as the cause of their death.

Shall we let this occur again, without an effort to save our bees, by feeding them in the time of scarcity, to keep the queen breeding, and thus keep the stock strong; or, by increasing the amount of *pasturage*, to gain the same end? We must increase the amount of pasturage, to be successful and prosperous in bee-keeping.

Jewell Davis.

Charleston, Ills., May 7, 1869.

[For the American Bee Journal.]

The Dzierzon Theory.

Reply to H. Rosenstiel.

In the May number of the current volume of the Bee Journal, page 222, H. R. refers to my article on page 90 of the Bee Journal, for November, 1867, and says that I claim that the Dzierzon theory is not true. I am surprised that he should make such a mistake, for, by reference to that article, it will be found that I say as follows:—"Now, while I fully endorse the conclusion arrived at by Mr. Lowe, 'that drones are in some way affected by the act of fecundation,' yet I *cannot* say with him that the Dzierzon theory is not the true theory of reproduction of the honey bee."

H. R. will understand that Dzierzon claimed that a pure queen, mating with a common drone, would produce drones as pure as herself. This at least is what I understand Dzierzon to claim; and I hold that it is quite correct. Nevertheless, the drones are not pure. And why? Simply because the queen is affected by the act of coition with the black drone. By absorption and circulation her whole system partakes of the nature of the male, and she is no longer as pure as she was before coition. Hence her drones, though as pure as herself, are not pure; yet they are not hybrid, and the Dzierzon theory is true that drone eggs are unimpregnated eggs.

If H. R. doubts my theory, he will, of course, accept my offer on page 165 of the Bee Journal, for March, 1869. Some may suppose that the above theory would make the honey bee an anomaly in creation; but such is not the case, for it will be found true in very many other animals. It is well known to sheep-breeders, that the blood of the male that first cohabits with the ewe, will appear in after generations, though the ewe may never again cohabit with a male of the same blood. This is true also of cattle, horses, fowls, and even of human beings. Is it strange then that it should be the case with the honey bee?

I would say to H. R. that it is no evidence that the black drones did not partake of the nature of the Italians because to the eye they "bore no Italian marks." It is often the case with fowls, and other animals, that no foreign or impure blood can be discerned in the male, yet it will appear in the next generation. I would say, therefore, that though the drones produced by a pure queen mating with a black drone, may not show to the eye any signs of black blood, yet if such drones mate with pure queens, the progeny will show the dash of black blood, by losing one or more of the yellow bands. Hence my offer, already referred to.

J. H. Thomas.

Brooklin, Ontario.

[For the American Bee Journal.]

Purity of Italian Queens.

My friend Ch. Dadant misapprehends me somewhat.

I do not rely *on color* simply, as a test of purity. But this I do say, that every perfectly pure (if I may be allowed the expression) Italian worker has three yellow bands. In other words, a *pure* queen impregnated by a pure drone, will produce a progeny of bees every one of which will have three yellow bands; but the bands may be lighter or darker in color. In some instances the color will be almost orange, in others a light yellow. It is not the *color* that is affected by a dash of black blood, but the *number of the bands*; for a hybrid stock will often contain workers of a light yellow color.

Friend Dadant thinks that if a "three-fourth Italian drone" should mate with a pure Italian queen, I would hardly be able to detect the change, if I rely only on color. Now, as it is not on color, but on the number of bands I rely, it will be seen that the change would be easily observed; for the slightest dash of black blood will cause some of the bees to lose a band, and some two bands. Now, it is held that if a *pure* queen mates with a black drone, her worker progeny will be hybrid; but her drones will be pure as herself. This theory is correct, yet the drones are not pure; though they are as pure as the queens that produced them. Paradoxical as this seems, it is easily explained. The absolute purity of the queen ceases at the moment of coition with the black drone. She is no longer pure—her whole system has been impregnated, so to speak, with black blood in the act of coition, and as the eggs which produce the drones are particles of herself collected together, so the drones produced by those eggs have, like herself, a dash of black blood; and in every case when such a drone meets with a pure queen, the progeny, although not hybrid, will show the dash of black blood by losing one or more bands. Yet every bee will be marked; and none entirely black, as in hybrid stocks.

If, therefore, such a slight dash of black blood causes the loss of a band, the impurity would be easily discovered in such a case as supposed by friend Dadant, as the dash of black blood would be greater and more direct.

The above theory is as true in reference to many other animals, as with the bee, which can be clearly shown if necessary.

J. H. Thomas.

Brooklin, Ontario.

[For the American Bee Journal.]

That "Economic Hive."

Mr. Editor:—I wish to give my testimony in favor of the hive called as above by Rev. J. W. Truesdell, and explained by him in the May number of the Bee Journal. I hit upon the same plan several months ago, partly by reading Mr. Gallup's and Mr. Price's articles, and partly because my frames were 12 by 14 inches inside measurement, which I became satisfied were too high for profit and convenience in handling. Concluding to make the frames 11 inches high, I made up the loss in depth by making my hives wide enough to hold twelve frames and a partition board.

I cut down the frames and hives of sixteen stands of bees, part of them the middle of April, and the remainder a few days ago. I made my caps twelve inches high, and large enough to shut out the main hive, which makes a very simple and inexpensive double hive. The nucleus apartment seems to be the best yet devised for raising queens. Each hive can be made with a small entrance in one end, and be used for a nucleus at any time, to put in all spare queen cells, by adjusting the partition board.

My Italian bees have plenty of honey, are in fine condition, and are putting out brood very rapidly. I wintered them in double hives on their summer stands. Have used double hives for three years, and have never lost a swarm in them. I lost a swarm the last March in the only single hive I had, in this manner: They had lost but little honey, and I was feeding them. One sunny day after a very cold one, I opened them in the morning and found them apparently dead. They appeared to be as lifeless as any dead bees I ever saw. I brushed them off the bottom board in a pile on the ground. Passing near them in the afternoon, to my astonishment, I found them alive, queen and all. I gathered them up, and if the next day had been warm enough for bees to fly, think I could have saved them. But as they had not not discharged their fæces, and the weather continued cold for a week or more, I could not save them.

Just after a few days of cold weather along the first of March, in examining a stock containing a pure Italian queen, I found a handful or two of dead bees between the second and third outside frames. As it was quite cold, I did not look to see if their queen was safe. The next two weeks was very cold weather. The first warm day, which was four or five weeks after, I opened the hive and found a small dark-colored queen and the cell she was reared in. As she has not laid any eggs since, and as there was brood the first of March, she must have been reared when the weather was at zero.

I have received much useful information from the Bee Journal, and advise all bee-keepers to subscribe for it. J. L. Peabody.

Virden, Ills.

[For the American Bee Journal.]

Crooked Combs.

Is there any way to secure straight combs? If so, I should like to know how. Will Mr. Quinby, or some other beekeeper of experience, please give me his plan? I am using the frame hive, but my bees make the combs crooked. I have one hive with five frames wove together so that they cannot be separated. Is any one else having the same trouble?

Charles Taylor.

Bordentown, N. J., May 6, 1869.